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May 11, 2006

Mr. Dwight Sanders
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

RE: Revised Draft Environmental Impact Report for the Cabrillo Port LNG Natural Gas Deepwater Port (State Clearinghouse #2004021107)

Dear Mr. Sanders:

The following comments on the Revised Draft Environmental Impact Report for the Cabrillo Port LNG Natural Gas Deepwater Port ("Revised DEIR") are submitted by the Environmental Defense Center (EDC) on behalf of our client, the California Coastal Protection Network (CCPN).[1] CCPN is a California public benefit corporation, dedicated to the protection of the California coast through education, research, and empowerment of public citizens. CCPN is headquartered in Santa Barbara, California, and represents members throughout the State, including Santa Barbara, Ventura, and Los Angeles Counties. The EDC is a non-profit public interest law firm that represents community organizations in environmental matters affecting California's south central coast.

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As set forth in detail below, the Revised DEIR appears to have addressed some of the comments submitted earlier by EDC, CCPN and other members of the public, in response to the original DEIS/EIR. Significantly, the Revised DEIR now discloses that there will be a number of Class I (unmitigated) air quality impacts as a result of the proposed project. The Revised DEIR also discloses that the safety risks and visual impacts from the project will be much greater than previously predicted.

However, the Revised DEIR continues to overlook or understate several significant environmental effects of the project, including impacts relating to air and water quality,

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[1] / On behalf of CCPN, EDC incorporates by reference comments submitted earlier in response to the original DEIS/EIR, dated December 20, 2004, and February 23, 2005.

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Thank you for the information.

G207-2
Sections 4.6.4 and 4.18.4 discuss the Project's potential impacts on air and water quality. Section 4.2 and Appendix C contain information on public safety. Section 4.11 contains information on potential seismic and geologic hazards and mitigation measures to address such impacts. Appendices J1 through J4 contain additional evaluations of seismic hazards. Section 4.11.1.8 and Impact GEO-6 in Section 4.11.4 contain information on potential impacts from tsunamis and mitigation measures to address such impacts. Section 4.6.1.4 discusses greenhouse gases. Section 4.7 and 4.8 contain information on marine and terrestrial biology, respectively. Section 4.3 contains information on marine traffic. Section 4.4 and Appendix F contain information on aesthetics, including views. The analysis in the March 2006 Revised Draft EIR accurately described the breadth and severity of the Project's environmental impacts.

safety, geologic hazards (including earthquakes and tsunamis), climate change, marine and terrestrial biology, marine traffic, and views. The Revised DEIR also fails to analyze an adequate range of alternatives and summarily rejects environmentally preferred alternatives such as energy conservation, efficiency, and renewable sources of energy. Finally, the Revised DEIR rejects safer technologies such as on-board re-gasification or HiLoad LNG Regas technology.

The impacts from this project would be tremendous. The fact that this project would be permanent, with no expiration date in the license[2], magnifies the extreme dangers and risks that would be posed to the marine environment, the State's coastline and local communities. The fact that the project would increase our State's reliance on foreign sources of energy, and extend our use of fossil fuels to meet our energy needs, requires meaningful consideration of whether we need this gas supply, and what alternatives are available that would satisfy the same need while reducing or avoiding the tremendous environmental, socioeconomic, and safety impacts. The project violates our State's approved Energy Action Plan and conflicts with our State's goal of reducing greenhouse gas emissions. The Revised DEIR should be revised yet again to fully disclose these impacts and to evaluate alternatives that will meet our energy needs in a safe and environmentally friendly manner.

The following issues will be addressed in this comment letter:

- The discussion of the project's "purpose, need and objectives" is defective because (1) it is so narrow as to preclude consideration of a reasonable range of alternatives, as required under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA); and (2) it fails to provide adequate consideration and analysis of energy alternatives such as conservation, efficiency, and renewable sources of energy. (See pp. 5-12.)

- The federal lead agencies, the U.S. Coast Guard (USCG) and Maritime Administration (MARAD), have failed to recirculate the Draft Environmental Impact Statement, despite the changes in the project, the identification of new and increased impacts, and the inadequacies in the original DEIS. (See pp. 13-14.)

- The project description fails to describe the whole project, including the production of the gas and transportation of LNG overseas from its source to the United States. These activities will contribute significantly to the direct and indirect effects of the project. In addition, the project description provides inconsistent information regarding the size and capacity of the project. Although the Revised DEIR acknowledges that the facility will have a maximum capacity of 1.5 billion cubic feet per day of natural gas production, the EIR analyzes impacts based on an "average" capacity of half that size, or 800 million cubic feet

[2] / See Revised DEIR, p. 1-5.

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Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a

limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

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Section 3.3.8 contains information on alternative deepwater port concepts that were considered; Section 3.3.9 contains information on alternative technologies along with the reasons these potential alternatives were not carried further in the analysis.

The FSRU proposed in the Project would use onboard regasification.

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As stated in Sections 1.0 and 2.8, the Applicant's projected FSRU in-service life is a maximum of 40 years, after which the FSRU would be decommissioned and removed from the mooring point and towed to a shipyard.

Section 1.1.1 contains information on the terms and conditions of the Federal license, which has no expiration date and would remain valid as long as the operator remains in compliance with the license. MARAD retains the authority to revoke or suspend the license at any time if any of the conditions of license are no longer satisfied.

If the Project were licensed, it would be subject to monitoring over its life span. NEPA does not require supplemental or new documentation unless there is a significant change to the project which would result in impacts that are substantially different than those identified in the EIS or if the construction and/or operations impacts are greater than those assessed. It is the responsibility of the lead agency to determine if new NEPA documentation is required.

For example, the USEPA would require regular reports as part of its NPDES permit; non-compliance with permit requirements would result in fines/penalties and/or require a new/revised NPDES permit, which would be open for public comment. The USEPA can also determine the need for and recommend supplemental NEPA documentation.

Depending on the type(s) of air permits and the agency that issues them, regular reporting also would be required. Again, non-compliance with permit(s) requirements would result in fines/penalties and/or require new/revised air permit(s). Since the USEPA would issue the construction and operations permit, then any new or revised permit would be open for public comment. The USFWS and NOAA will be part of developing monitoring/mitigation programs for terrestrial biota, fisheries, and marine mammals. The USFWS and NOAA can request USEPA to require supplemental NEPA documentation.

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Section 1.2 discusses dependence on foreign energy sources. Sections 1.2.2, 1.2.3, 1.2.4, 3.3.1, 3.3.2, and 4.10.1.3 contain information on the need for natural gas, the role and status of energy conservation and renewable energy sources, and the California Energy Action Plan.

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would maintain, for an indeterminate time, the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

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Contrary to the comment, this Project is consistent with the California Energy Action Plan. Section 4.10 contains information on the California Energy Action Plan and an assessment of the proposed Project's compatibility with the Plan. Sections 4.6.1.4 and 4.6.2 contain information on Project emissions of greenhouse gases and recent California legislation regarding emissions of greenhouse gases.

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The lead agencies have reviewed the NEPA CEQ Guidelines and the State CEQA Guidelines concerning recirculation and have determined that the changes to the proposed Project and associated information that has been included in the document since the Revised Draft EIR was recirculated in March 2006 do not meet the criteria listed specifically in section 15088.5(a)(1-4) of the State CEQA Guidelines; therefore, the lead agencies believe recirculation is unwarranted.

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See the specific response to each comment on pages 5 to 12 of this letter.

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See the specific response to each comment on pages 13 to 14 of this letter.

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See the specific response to each comment on pages 14 to 17 of this letter.

per day. This discrepancy results in a gross understatement of impacts. (See pp. 14-17.)

- The alternatives analysis fails to include a reasonable *range* of alternatives, instead rejecting all of the environmentally preferred alternatives to LNG (e.g., energy conservation, efficiency and renewable sources of energy). The Revised DEIR also fails to evaluate alternative proposed LNG projects, and alternative technologies that may reduce project impacts. (See pp. 17-30.)

- The Revised DEIR fails to disclose the indirect effects of the project, including those effects that would occur as a result of the "full supply chain" for the project: the extraction and production of the gas, the processing and liquefaction of the gas, and the shipment of the LNG overseas for thousands of miles. One of the most significant and troubling indirect effects is the project's contribution to global climate change. (See pp. 30-31.)

- The Revised DEIR continues to ignore or significantly understate several impacts of the project; in particular, the DEIR fails to adequately assess the following impacts:

    - **Safety**: Although increasing the risk zone of the project by a factor of almost four, to 7.3 miles, the Revised DEIR continues to rely on inappropriate modeling methodology. The Revised DEIR also omits the scenario of a three-tank release, which was addressed in the original DEIS/EIR. Even thought the hazard zone is larger, the Revised DEIR fails to implement new mitigation measures to address this impact. The Revised DEIR also fails to analyze the risks of an onshore gas leak based upon the chemical make-up of LNG gas, or to fully consider potential accident scenarios. Finally, the Revised DEIR fails to disclose the limitations on the applicant's liability for acts of terror and natural disasters. (See pp. 31-40.)

    - **Marine traffic**: The Revised DEIR fails to adequately consider the project's incompatibility with Naval operations, and current and projected increases in shipping in the north-south shipping lanes. In addition, the Revised DEIR fails to adequately consider the risks of accidents relating to ship traffic or the Floating Storage and Regasification Unit (FSRU). (See pp. 40-43.)

    - **Views**: The Revised DEIR has been modified to admit that the massive LNG terminal and tankers will be visible from both onshore as well as offshore. However, the Revised DEIR still underplays the project's impacts by comparing the FSRU to other offshore structures and vessels that are either not present in the area on an ongoing, daily basis, or are

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See the specific response to each comment on pages 17 to 30 of this letter.

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See the specific response to each comment on pages 30 to 31 of this letter.

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See the specific response to each comment on pages 31 to 40 of this letter.

G207-15
See the specific response to each comment on pages 40 to 43 of this letter.

G207-16
See the specific response to each comment on page 44 of this letter.

much smaller in size and not so obtrusive on coastal views. (See pp. 44-44.)

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- **Air quality**: The Revised DEIR fails to fully analyze all emissions from the proposed project, bases its analysis on faulty assumptions, and excludes certain emissions from its analysis. The Revised DEIR fails to acknowledge that the emissions from the project will flow onshore, and fails to apply onshore thresholds of significance. By limiting its analysis to emissions within 25 nautical miles from shore, the Revised DEIR fails to adequately disclose the air pollution impacts to local onshore communities, which already violate state and federal clean air standards. The Revised DEIR also relies on the U.S. Environmental Protection Agency's (USEPA) unlawful decision to change the rules that apply to the project to avoid adequate mitigation and offsets for the proposed project. Finally, the Revised DEIR fails to consider the greenhouse gas emissions from the full supply chain necessary to bring LNG to California, and the resulting climate change impacts. (See pp. 47-74.)

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- **Marine wildlife**: The Revised DEIR fails to consider impacts to whales and other marine wildlife, by incorrectly asserting that migrating whales do not occur in the project area. This representation is wrong, and results in a tremendous omission in the Revised DEIR. In fact, whales and fisheries will be impacted by the noise from the project, by the presence of the FSRU and LNG tankers and support vessels, by the seawater intake operations, and by the discharge of heated water directly into the ocean. (See pp. 74-89.)

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- **Terrestrial biology**: The Revised DEIR still fails to include a complete description of the baseline conditions for the project. Instead, the Revised DEIR defers many surveys that are critical to assessing the baseline, as well as the analysis of the project's potential impacts on sensitive, rare, threatened and endangered species. The Revised DEIR also inappropriately defers identification and analysis of mitigation measures, which precludes a meaningful determination of whether impacts will be adequately avoided or lessened. Finally, the Revised DEIR fails to adequately analyze the project's consistency with laws, regulations, policies and plans that protect environmental resources. (See pp. 89-107.)

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- **Energy**: As in the Alternatives discussion, the Revised DEIR fails to consider California's approved Energy Action Plan and the State's preference for energy conservation, efficiency and renewables. The Revised DEIR also fails to consider the adverse impact of LNG on investment and contracts for renewable energy sources. (See pp. 107-110.)

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G207-17
See the specific response to each comment on pages 47 to 74 of this letter.

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See the specific response to each comment on pages 74 to 89 of this letter.

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See the specific response to each comment on pages 89 to 107 of this letter.

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See the specific response to each comment on pages 107 to 110 of this letter.

- **Geologic hazards**: The Revised DEIR relies on incomplete and outdated information, and therefore fails to accurately and thoroughly assess current geologic behaviors and potential impacts. Due to reliance on inadequate information, the Revised DEIR proposes mitigation measures that will not adequately avoid a seismically-related accident. (See pp. 110-115.) G207-21

- **Land use**: The Revised DEIR fails to identify all applicable plans, policies, and regulations that apply to the proposed project, and fails to analyze the project's consistency with such plans, policies and regulations. (See pp. 115-117.) G207-22

- **Noise**: The Revised DEIR fails to consider the direct and cumulative impacts of noise on marine life. (See p. 117.) G207-23

- **Recreation**: The Revised DEIR fails to consider impacts to sailors and other recreational boaters in the vicinity of the LNG project. (See pp. 117-118.) G207-24

- **Socioeconomics**: The Revised DEIR fails to adequately analyze potential impacts to local and regional housing, public safety, commercial fishing, and transportation. In addition, the Revised DEIR fails to compare the impacts of this project to the socioeconomic benefits of clean energy alternatives. (See pp. 118-119.) G207-25

- **Water quality**: The Revised DEIR fails to analyze the impacts that will result from the high temperature "thermal discharges" of the project on plankton, fish and other marine wildlife, and fails to point out that these discharges will violate State and Federal clean water laws. The Revised DEIR also fails to adequately disclose impacts from accidental spills, increased turbidity and suspension of contaminants, drilling fluid releases, and construction run-off. (See pp. 119-129.) G207-26

In sum, the CSLC and USCG must revise their environmental analysis and provide the public and decision-makers with a complete and accurate understanding of the adverse impacts of the proposed LNG project, and a range of options for addressing our State's energy demand.

1.0 INTRODUCTION

1.2 PROJECT PURPOSE, NEED, AND OBJECTIVES

The Revised DEIR states that the objective of the proposed project is "to license and build a DWP to deliver specified quantities of natural gas to California and the United States." (Revised DEIR at p. 1-7.) This statement is actually a description of the project, not an objective. The objective should be described in broader terms as the satisfaction G207-27

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See the specific response to each comment on pages 110 to 115 of this letter.

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See the specific response to each comment on pages 115 to 117 of this letter.

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See the specific response to the comment on page 117.

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See the specific responses to each comment on pages 117 - 118.

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See the specific response to each comment on pages 118 to 119 of this letter.

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See the specific response to each comment on pages 119 to 129 of this letter.

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The proposed Project must be viewed in the context of the Deepwater Port Act (DWPA), described in Section 1.1.1. The DWPA, as amended, was approved to promote the importation of natural gas, as well as oil. Section 1.2 describes the Applicant's "objective" for the proposed Project as "to license and build a deepwater port (DWP) to deliver specified quantities of natural gas to California and the United States." While the word "objective" is used in the text, this sentence is intended to describe the Project "purpose" under NEPA, and the Project's "underlying purpose" under the CEQA, rather than the CEQA Project objectives (40 CFR 1502.13; State CEQA Guidelines section 15125(d).) The text correctly identifies the Project purpose. The need for the proposed Project is market-based; it proposes to meet a projected economic need for reliable and diverse sources of natural gas. The CEQA Project objectives are identified in Section 1.2.5. The "purpose and need" under NEPA and the underlying purpose and Project objectives under the CEQA provided an appropriate basis for the lead agencies' development and evaluation of Project alternatives. The document complies with these requirements.

of projected energy needs for California and the U.S. Under CEQA, an objective cannot be so narrow as to preclude consideration of a reasonable range of alternatives.[3] In this case, the objective only allows consideration of a Deepwater Port that will import LNG from a foreign country to the U.S.

The statement of purpose and need under NEPA is somewhat broader, as it provides for a project that will "meet the economic need for reliable and diverse sources of natural gas." (Revised DEIR at p. 1-7.) However, again, the statement is too narrow because it is limited to the acquisition of natural gas, whereas other cleaner and safer alternatives are available to meet the state's and nation's energy demands.[4]

1.2.1 Federal and State Responsibilities

The Revised DEIR points out that the Federal lead agency has the authority and responsibility to define the "purpose and need" for purposes of NEPA analysis. (Revised DEIR at p. 1-7.) The Revised DEIR then unnecessarily and unlawfully restricts the overall purpose of the project – to meet our energy needs – as well as the range of alternatives that can be considered, by limiting the purpose of the project to the purposes outlined in the Deepwater Port Act. (Id.) This interpretation of the project's purpose is too narrow and prevents consideration of a range of alternatives that can meet the State's and nation's energy needs.

Even in the context of the Deepwater Port Act, the lead agencies must identify the project's consistency with the environmental declarations, goals and objectives of the law:

- Protection of the marine and coastal environment, and prevention or minimization of any adverse impacts which might occur as a consequence of the development of a deepwater port;
- Protection of the interests of the adjacent coastal State in location, construction and operation of deepwater ports, and in the rights and responsibilities of States and communities to protect the environment;
- Promotion of the safe construction and operation of deepwater ports;

[3] / CEQA Guidelines §15124(b); City of Santee v. County of San Diego (1989) 214 Cal.App.3d 1438, 1455 [263 Cal.Rptr. 340]; County of Inyo v. City of Los Angeles (1981) 124 Cal.App.3d 1, 9 [177 Cal.Rptr. 479]; see also Save the Niobara River Association, Inc. v. Andrus (D.Neb. 1977) 483 F.Supp. 844 (EIS inadequate for failure to consider water conservation as an alternative to construction of a dam and reservoir); NRDC v. Evans, 232 F.Supp.2d 1003 (N.D.Cal. 2002) (effectively limiting agency choice to one alternative is a violation of NEPA).

[4] / The statement of need claims that "Natural gas…burns cleaner than other fossil fuels, which meets other societal goals such as reduced air pollution." (Revised DEIR at p. 1-7.) As discussed *infra*, natural gas is a fossil fuel and significant contributor to air pollution and climate change. In addition, the importation of LNG exacerbates these impacts due to the "energy penalty" required for the liquefaction, transportation, and regasification of the natural gas. (See discussion of indirect effects herein.)

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As stated in Section 1.2.1, "the requirement for a discussion of purpose and need under NEPA is to briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." CEQA requires a clearly written statement of objectives that includes the underlying purpose of the project. The document complies with these requirements. Section 1.2.5 contains additional information on the Applicant's purpose and objectives.

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The EIS/EIR has been developed to evaluate a private application to construct and operate a deepwater port within the regulatory requirements of the DWPA, as amended. The purpose and need and Project objectives are appropriately described in the context of a private application under the DWPA. See also the response to the previous comment.

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Natural gas is a major component of California's energy supply and demand. The context of this component has been addressed by the CEC and the CPUC as discussed in Section 1.2.3 of the document. The Project proposes to provide additional supplies of that component as do the projects discussed in Sections 3.3.5, 3.3.7.3 and 3.3.8.1 of the document and other projects propose to provide other components of the State's energy mix, e.g., the expansion of generating capacity in the Tehachapi's Wind Area (see Table 3.3-1).

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Sections 1.2.2, 1.2.3, 1.2.4, 3.3.1, 3.3.2, and 4.10.1.3 contain information on the need for natural gas, the role and status of energy conservation and renewable energy sources, and the California Energy Action Plan.

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Sections 3.3.1 and 3.3.2 address conservation and renewable energy sources, within the context of the California Energy Commission's 2005 Integrated Energy Report and other State and Federal energy reports, as alternatives to replace additional supplies of natural gas.

Sections 1.2, 3.1, 3.2, 3.3.1, 3.3.2, 3.3.3, 4.10, and 4.10.1.3 contain information on the range of alternatives evaluated. Under NEPA and the CEQA, a reasonable range of alternatives must be considered. NEPA requires consideration of a "reasonable" number of alternatives. In determining the scope of alternatives, the emphasis is on "reasonable." "Reasonable" alternatives include

those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a). The information must be sufficient to enable reviewers and decision-makers to evaluate and compare alternatives. The State CEQA Guidelines section 15126.6(a)states:

"An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project."

The EIS/EIR initially evaluated 18 locations for the FSRU as potential locations for the deepwater port. It built on previous California Coastal Commission studies that evaluated nearly 100 locations. Sections 3.3.7 and 3.3.9 discuss alternate locations and technologies that were considered.

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would maintain, for an indeterminate time, the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

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Section 4.7.4 contains revised text on potential impacts on marine biological resources and mitigation measures to address such impacts. Project impacts on coastal ecosystems would be limited to the pipeline corridor during construction and operation (see Section 2.1). The shore crossing required for the proposed Project would be installed beneath Ormond Beach (see Sections 2.3.2 and 2.6.1). The EIS/EIR identifies potential adverse environmental effects of the proposed Project. The mitigation measures identified in Chapter 6 are designed to minimize or avoid potential environmental impacts from the construction or operation of the proposed Project. In order to receive a license from MARAD, and a lease from the CSLC, the Applicant must agree to implement the mitigation measures identified in the EIS/EIR and any other conditions that may be specified in the license and/or lease.

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Section 4.7.4 contains information on potential impacts on marine biological resources and mitigation measures to address such impacts. Section 1.3.2 contains information on the role of the CSLC and other state and local agencies in regarding environmental

issues related to this Project.

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Section 2.1 and Appendix C3-2 contain information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU. The Cabrillo Port must be designed in accordance with applicable standards, and the USCG has final approval.

Section 4.2.4 contains information on Federal and State agency jurisdiction and cooperation. The Deepwater Port Act specifies regulations that all deepwater ports must meet; Section 4.2.7.3 also contains information on design and safety standards for the deepwater port. Section 4.2.8.2 contains information on pipeline safety and inspections. Impact EJ-1 in Section 4.19.4 addresses additional pipeline design requirements in areas of low-income and minority communities. The EIS/EIR's analyses have been developed with consideration of these factors and regulations and in full conformance with the requirements of NEPA and the CEQA.

The lead agencies directed preparation of the Independent Risk Assessment (IRA), and the U.S. Department of Energy's Sandia National Laboratories independently reviewed it, as discussed in Section 4.2 and Appendix C.

Section 4.2.7.6 and the IRA (Appendix C1) discuss the models and assumptions used and the verification process. Sandia National Laboratories (Appendix C2) concluded that the models used were appropriate and produced valid results.

The IRA evaluates the consequences of a potential vapor cloud (flash) fire, as discussed in Section 4.2.7.6 and the IRA (Appendix C1). The IRA determined that the consequences of the worst credible accident involving a vapor cloud fire would be more than 5.7 NM from shore at the closest point, as summarized in Table 4.2-1. Figure 2.1-2, Consequence Distances Surrounding the FSRU Location for Worst Credible Events, depicts the maximum distance from the FSRU in any direction that could be affected in the event of an accident. The shape and direction of the affected area within the circle depicted in Figure 2.1-2 would depend on wind conditions and would be more like a cone than a circle, but would not reach the shoreline.

- Minimization of tanker traffic and risks attendant thereto;
- Assurance that a deepwater port project complies with all applicable laws and regulations, including the Clean Air Act, the Federal Water Pollution Control Act, and the Marine Protection, Research and Sanctuaries Act;
- Consistency with energy sufficiency and environmental quality;
- Assurance that the project will not interfere with international navigation;
- Requirement for use of best available technology to prevent or minimize environmental impacts;
- Compatibility with programs of the Department of Defense.[5]

As stated herein, the Revised DEIR (and DEIS) fails to analyze the project's consistency with these requirements of the Deepwater Port Act and ensure full compliance therewith.

1.2.2 Natural Gas Need in the United States

The Revised DEIR states that the demand for natural gas will increase at an annual rate of 1.5 percent nationwide from 2003 to 2025. (Revised DEIR at p. 1-9.) However, the Revised DEIR fails to address the potential for increases in natural gas production as well. According to the U.S. Department of Energy (USDOE), U.S. domestic natural gas production is expected to rise.[6] According to the American Gas Association, "US natural gas reserves at the end of 2005 were at their highest level since 1984."[7] The Revised DEIR should be modified to include a current assessment of the capacity for increases in natural gas production as well as demand. As noted below, the nominal expected increase in natural gas demand could also be met by securing natural gas from Mexico and Canada, or preferably by increasing national energy efficiency and renewable supplies.

In March, state Attorneys General from Illinois, Iowa, Missouri, and Wisconsin issued a report challenging the claim of a domestic natural gas shortage and pointing to market manipulation by industry as the reason for any gas supply constraints or price increases. According to this report, national demand for natural gas has been "relatively flat" over the past ten years, and in fact demand has declined slightly in the last few years. The report also notes that gas supply reserves have been growing. Furthermore, the report notes that the "long run cost of producing gas…is far below the current price being paid." Gas storage is at or near record levels, "up over 50% percent compared to the last couple of years." In sum, the report concludes by noting that concerns about our national gas supply availability are not due to supply deficiencies, but rather to marketing and regulatory factors that should be addressed and modified as appropriate.[8]

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[5] / 33 U.S.C. §§1501, 1503.

[6] / Kendall, James, DOE EIA, *Current Natural Gas and LNG Projections,* National Association of Regulatory Utility Commissioners, July 29, 2003. References that are attached as exhibits to this comment letter are listed on the Reference list at the end of this comment letter.

[7] / Snow, Nick, *AGA: US gas reserves highest since 1984*, April 4, 2006.

[8] / Cooper, Mark N., Ph.D. *The Role of Supply, Demand, and Financial Commodity Markets in the Natural Gas Price Spiral: Prepared for Midwest Attorneys General Natural Gas Working*

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The Project has been modified since issuance of the March 2006 Revised Draft EIR. See Section 1.4.2 for a summary of Project changes. The Applicant has reduced the number of LNG carriers that would call on the FSRU annually from a maximum of 130 to a maximum of 99. As a result, the number of LNG carriers docking at the FSRU weekly would be reduced from an average of two to three per week to one to two per week. Since a crew vessel would meet each LNG carrier, the number of crew vessel trips to and from Port Hueneme would also change. See Section 4.3 for more information on this topic.

G207-33
If the Applicant were to receive a license for the deepwater port from MARAD and a lease from CSLC, the Applicant, or its designated representative, would be required to adhere to all applicable local, State, and Federal laws, regulations, and permit requirements in the execution of all phases of the Project. Permits required are listed in Section 1.6.

G207-34
Sections 1.2.2, 1.2.3, 1.2.4, 3.3.1, 3.3.2, and 4.10.1.3 contain information on the need for natural gas, the role and status of energy conservation and renewable energy sources, and the California Energy Action Plan.

G207-35
Section 4.3.4 analyzes impacts to all types of marine traffic. It was determined that impacts marine traffic could be mitigated.

LNG carriers approaching and departing the Cabrillo Port FSRU would travel on the routes depicted in Figure 4.3-2 (also see Section 4.3.1.3). LNG carriers would neither cross nor enter the Santa Barbara Channel coastwise traffic lanes under normal operating conditions. The FSRU would be located about 2 nautical miles from the southbound coastwise traffic lane. Given this distance, its presence, under normal operating conditions, would not interfere with operations in the coastwise traffic lanes.

LNG carriers and commercial vessels longer than 65 feet (20 m) would be equipped with an automatic identification system (AIS) so that they would be able to detect other LNG carriers and other vessels. Also, LNG carriers would be responsible for adhering to the "rules of the road" for ship traffic. Section 4.3.1.4 describes safety measures to be used.

A safety zone would extend in a circle a maximum of 500 meters

from the stern of the FSRU. An area to be avoided (ATBA) would surround the safety zone, but would not extend as far as the coastwise traffic lanes (see Figure 4.3-4 and Sections 2.2.4 and 4.3.1.4). These would be identified on navigation charts, so mariners could plan to avoid them.

Therefore, vessel traffic in the traffic lanes would not be affected by the safety zone or the ATBA (see Section 4.3.4). Section 4.3.1.4 states, "A vessel transiting the ATBA would be requested to restrict its speed to no more than 10 knots (19 km/hour) and to check in and out with the Cabrillo Port vessel operations manager. Both the speed limit restriction and contact with the Cabrillo Port vessel operations manager would be voluntary actions of mariners in vessels transiting the ATBA." The safety zone could not be made any larger because its size is governed by international law.

G207-36
Sections 2.1 and 4.2.7.3 contain information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU and LNG carriers.

Section 2.2 contains information on the technology to be used on the FSRU. Section 4.6.4 contains information on the best available technology to reduce air quality impacts. Section 4.18.4 contains information on the best available technology to reduce water quality impacts.

G207-37
Section 4.3.4 contains information on potential impacts associated with the increased vessel traffic due to the proposed Project. The FSRU would be located 3.5 NM (3.54 miles) from the eastern boundary of the Point Mugu Sea Range (Pacific Missile Range). Impacts MT-5 and MT-6 in Section 4.3.4 address potential Project impacts on Naval and Point Mugu Sea Range operations.

G207-38
Section 1.1.1 contains information on the process used by the Deepwater Port Act (DWPA) of 1974, as amended, which establishes a licensing system for ownership, construction and operation of deepwater port (DWP) facilities. As discussed, the role of the Maritime Administration (MARAD) is to balance the Congressionally imposed mandates (33 U.S.C. 1501) of the DWPA, including those to protect the environment; the interests of the United States and those of adjacent coastal states in the location, construction, and operation of deepwater ports; and the interests of adjacent coastal states concerning the right to regulate growth, determine land use, and otherwise protect the environment in

accordance with law.

Section 1.1.2 contains information on the Governor of California's Role in DWP licensing. As discussed, MARAD may not issue a license without the approval of the Governor of the adjacent coastal state (33 U.S.C. 1503(c)(8)). Section 1.1.3 contains information on the role of the U.S. Environmental Protection Agency (USEPA): "[t]he Port must meet all Federal and State requirements and is required to obtain air and water discharge permits from the USEPA." Section 1.2.1 contains additional information on Federal and State responsibilities. Section 1.1.4 contains information on the role of the CSLC to consider whether or not to grant a lease of State lands for the subsea pipelines. The lease may also include conditions relating to those parts of the Project not located on the lease premises. As described in Section 1.3.1, one of the main purposes of the EIS/EIR for MARAD is to "(f)acilitate a determination of whether the Applicant has demonstrated that the DWP would be located, constructed, and operated in a manner that represents the best available technology necessary to prevent or minimize any adverse impacts on the marine environment."

The preceding comment responses also discuss how the information in the EIS/EIR fulfills such purpose as described in Section 1.3.1.

G207-39
Sections 1.2.2 and 1.2.3 contain updated information on natural gas needs in the U.S. and California. Forecast information has been obtained from the U.S. Department of Energy's Energy Information Agency and from the California Energy Commission. See also Sections 3.3.4 and 3.3.5.

G207-40
Thank you for the information.

Similarly, the State of Alaska has recently leveled charges against the oil and gas industry, accusing the industry of withholding natural gas supplies in order to raise prices and profits. Specifically, the Alaska Gasline Port Authority claims that "the largest owners and developers of natural gas on the North Slope of Alaska, Exxon/Mobil Corporation and BP p.l.c., have jointly prevented North Slope natural gas from being brought to market." In testimony to the U.S. Senate Committee on the Judiciary, counsel for the Port Authority noted that natural gas resources in the North Slope "are immense." Conservative estimates of "proven" natural gas reserves "exceed 35 trillion cubic feet (TCF)."[9] There may be additional undiscovered reserves exceeding 150 TCF. The US consumed 22 TCF in 2005. Thus, production and delivery of this gas could make a significant dent in national natural gas demand. Instead, the owners of the gas have been re-injecting natural gas, which is produced as a by-product of oil development, into the ground. (Id.) Estimates are that 8 billion cubic feet of gas per day are re-injected into the Prudhoe Bay oil fields, an amount equal to half of the total daily residential consumption of gas in the entire U.S.[10]

In addition, Exxon/Mobil and BP have been engaged in a "concerted effort to derail any gas pipeline that could be used to transport gas from the North Slope to domestic markets in the U.S. and elsewhere."[11] Instead of supplying 7-10% of the U.S. demand for natural gas, these corporations are artificially restricting supply so that prices will rise. (Id.)

Steve Brown, the Federal Reserve Bank of Dallas' lead energy economist, testified to the House Energy and Mineral Resources Subcommittee in 2003 that domestic sources of gas should be produced before the nation considers importing expensive LNG from other countries.[12] At the same hearing, Bill Prindle, deputy director for the American Council for an Energy-Efficient Economy, pointed to 15 natural gas efficiency measures that can reduce U.S. gas demand by more than 10 percent by 2020. (Id.)

Clearly, energy efficiency, renewable sources, and domestic gas supplies can more than meet the expected national demand for energy.

G207-40 Continued

G207-41

G207-40 Continued

G207-41
As discussed in Section 1.2.2, the projections in the EIA's Annual Energy Outlook are based on the National Energy Modeling System, which includes a Renewable Fuels Module. Despite anticipated increases in the use of renewable energy resources and conservation in the U.S. supply/demand balance sheet, the EIA projects that total demand for natural gas will increase, even with conservation and use of alternative fuels.

Group. March 2006; Midwest Attorneys General Natural Gas Working Group, *Report from Working Group of State Attorneys General Finds Market Fundamentals Can't Account for Huge Increase in Natural Gas Prices: Supply and Demand Alone Don't Support $50 Billion Increase from 2004 to 2005,* March 7, 2006.

[9] / Boies, David, Boise, Schiller & Flexner, Counsel of the Alaska Gasline Port Authority, *Testimony Before the Committee on the Judiciary, United States Senate,* March 14, 2006.

[10] / Walker, William M., General Counsel and Project Manager, Alaska Gasline Port Authority, *Statement Before United States Senate Judiciary Committee Hearing on "Consolidation in the Oil and Gas Industry: Raising Prices?"* March 14, 2006.

[11] / Boies, *supra.*

[12] / Sullivan, Colin. *Oil and Gas: Federal Reserve economist departs from Greenspan on LNG,"* Environment & Energy Daily, June 20, 2003.

Even if the United States had a need to import LNG to meet its natural gas demand, there is no guarantee that the U.S. will be able to compete financially with other countries for this foreign supply of gas. As noted in the comments submitted by Pacific Environment, dependence on LNG will make the nation and state's ratepayers vulnerable to international gas trading regimes. Accordingly, California will be competing with other foreign markets, including Japan, China, South Korea and India.[13] This concern is shared by Wall Street energy analyst Andrew Weissman.[14]

G207-42

1.2.3 Natural Gas Need in California

Demand for natural gas in California has decreased by approximately 20% since 2000, as a result of energy conservation and new sources of renewable energy.[15] Only modest increases in demand are predicted over the next 20 years.[16] Clearly, the potential to continue the increases in energy efficiency and renewable supplies should be evaluated before the State turns to another fossil fuel, and a foreign supply.

G207-43

The Revised DEIR relies on the California Energy Commission's assessment of energy needs for California. However, *the CEC has admittedly never studied whether California needs to import LNG to meet its future energy needs*. Public citizens have repeatedly asked the Governor, the CEC and the CPUC to conduct such an assessment, but all requests have been denied. Mike Peevey, president of the CPUC testified during a senate hearing he preferred to let the market decide whether California needs LNG, stating that "We are not equipped to do an analysis."[17] As so aptly stated by Thomas D. Elias in the Ventura County Star, the State is considering LNG

G207-44

> even though there has never been a definitive study of whether the state needs this expensive new energy source, natural gas frozen into a liquid form in a variety of far-off foreign locations, then brought here by tanker, warmed back to a gaseous states and piped to homes and businesses. This is true even though there has yet to be any public hearing where advocates of LNG who stand to make billions of dollars on their projects could be cross-examined on questions of need and price. This is true even though a gas industry trade journal reported a boom last winter in domestic American gas production, with storage capacity at a premium and

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[13] / Cox, Rory, Pacific Environment. *Comments on Cabrillo Port LNG Deepwater Port Revised Draft EIR.* April 2006.

[14] / Weissman, Andrew D. *Where Will the Gas Come From?* Energy Ventures Group, LLC. 2005.

[15] / Cox, Rory, *supra*; see also Powers, Bill, P.E. *Availability of Domestic Natural Gas to Serve California's Needs and Role of LNG,* presented for the 20th Annual Environmental Law Super Symposium, April 6, 2006, citing Maul, D., California Energy Commission, presentation at Long Beach LNG Forum, April 2, 2005.

[16] / Cox, Rory, *supra*, citing California Energy Commission.

[17] / California Energy Circuit, *Legislators Comb Regulatory Plans,* vol. 4, no. 8, February 24, 2006.

G207-42
As discussed in Section 1.2.2, the EIA projections are based on economic models that consider worldwide trends in the cost of natural gas.

G207-43
Section 1.2.3 contains additional information on how the CEC considers energy efficiency and renewable supplies in its projection of natural gas needs.

G207-44
As discussed in Section 1.2.1, the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) must "carry out their respective energy-related duties based upon information and analyses contained in a biennial integrated energy policy report adopted by the CEC." Section 1.2.1 also describes the public process that is used to develop the Integrated Energy Policy Reports to ensure that California's energy-related interests and needs are met. Section 1.2.3 discusses, in part, the CEC's and CPUC's conclusions within the State of California's Energy Action Plan II; Implementation Road Map for Energy Policies, for example, to diversify natural gas supply sources to include LNG.

As indicated in Section 4.10.1.3, California Energy Action Plan, "To offset some of the demand for natural gas, California is increasing its energy conservation programs, will retire less efficient power plants, and is diversifying its fuel mix by accelerating the Renewables Portfolio Standard. However, according to the State's 2005 Energy Action Plan, 'California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)' (CEC and CPUC 2005)." Contrary to the comment, the CEC has studied whether California needs to import LNG to meet its energy needs and concludes, as indicated above, that it does.

As also discussed in Section 4.10.1.3, the CPUC recently reaffirmed that both the State's Integrated Energy Policy Report and Energy Action Plan recognize the need for additional natural gas supplies from LNG terminals on the West Coast: "However, even with strong demand reduction efforts and our goal of 20% renewables for electric generation by 2010, demand for natural gas in California is expected to roughly remain the same, rather than decrease, over the next 10 years. This is because, a substantial portion of the other 80% of electric generation (not met by renewable energy sources) will need natural gas as its fuel source,

and natural gas will still be needed for the growing number of residential and business customers of the natural gas utilities."

> wholesale prices dropping. What independent studies do exist indicate that natural-gas use in California has been flat and even dropping slightly and that North American sources of gas in Texas, Oklahoma, Colorado, Wyoming and Alberta probably could supply all this state would need for the foreseeable future.[18]

The failure of State agencies to analyze California's energy need led to the introduction of legislation, SB 426, that requires an evaluation of all pending LNG proposals in and offshore the State. The evaluation would include an assessment of need, considering a variety of energy alternatives.

In assessing need, the Revised DEIR should follow California's Energy Action Plan (EAP II).[19] EAP II, adopted in September 2005, incorporates a "loading order" that reflects the state's priorities and preferences for achieving our energy goals. Energy efficiency is the top priority, and is identified as the least cost, most reliable, and most environmentally sensitive resource. The second priority is to inform consumers on energy use, time and cost to reduce demand. The third priority is to "aggressively" develop renewable energy sources. The fourth priority is to upgrade the state's existing power plants, grid operations, and distribution systems. The fifth priority is to ensure a market structure that will provide affordable energy by working with industry and public utilities. The sixth priority is to *reduce* or moderate demand for natural gas. Although this component does include support for importing LNG, such action should only be taken after exhausting the five higher priority energy strategies.

EAP II also addresses climate change and supports Executive Order S-3-05, which provides greenhouse gas (GHG) emission reduction targets. The plan acknowledges that "Climate change is the most serious threat to our environmental future, and demands immediate action."[20] As noted below, importing LNG will cause a significant increase in GHG emissions, even more than domestic gas production causes.

The Revised DEIR references EAP II, but glosses over the loading order and jumps to the bottom of the priority list to reference the discussion of natural gas and LNG. The Revised DEIR fails to analyze whether the first five priorities in the loading order will meet our State's projected energy demand.

The Revised DEIR also fails to address the capacity of interstate and Canadian natural gas to meet California's demand. Moreover, the Revised DEIR fails to address the fact that the State has intentionally reduced its gas contracts from domestic sources, thus reducing supply and opening the door to importation of gas from foreign sources instead

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[18] / Elias, Thomas. *Question may no longer be whether LNG, but when?* Ventura County Star, April 6, 2006.

[19] / *State of California Energy Action Plan II: Implementation Roadmap for Energy Policies.* September 21, 2005.

[20] / EAP II at p. 12.

G207-44 Continued

G207-44 Continued

G207-45

G207-45
California Senate Bill 426 (Simitian), which would have created a ranking process for different LNG projects, was re-referred to the California Assembly Committee on Utilities and Commerce on August 24, 2006. As of November 30, 2006, the Legislature's Current Bill Status shows it as "From Assembly without further action," which ended the consideration of the bill during the 2005-06 Legislative Session.

G207-46

G207-46
As stated in Section 1.2.3, "[t]he California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and the CEC is responsible for determining the energy needs of California." The EIS/EIR acknowledges the contribution of energy conservation and renewables to meet California's energy needs in Sections 3.3.1, 3.3.2, and 4.10.1.3. However, the 2005 California Energy Action Plan states explicitly that "California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)."

G207-47

G207-47
Sections 4.6.1.4 and 4.6.2 contain information on Project emissions of greenhouse gases and recent California legislation regarding emissions of greenhouse gases.

G207-48

G207-48
The text in Section 1.2.3 summarizes the points most relevant to the proposed Project. In addition, an investor owned utility may procure additional renewable energy resources to meet its retail electricity customers demand if renewable energy sources score higher than nonrenewable generation in its "least cost, best fit" ranking of available resources. All eight points from the California Energy Action Plan II are included in Section 4.10.1.3, "California Energy Action Plan." Section 4.10.1.3 also contains information from the 2005 Energy Action Plan regarding energy conservation and renewable energy sources.

G207-49

G207-49
Section 3.3.4 contains additional information on new or expanded pipeline systems as an alternative source of natural gas.

of domestic sources. This shift not only decreases reliability, but also greatly increases pollution and climate change effects.

Amazingly, the Revised DEIR states that the CEC seeks to "remove constraints on the delivery of gas" and "looks at all energy sources." In fact the State has increased constraints on delivery of gas from domestic sources and fails to consider such sources for future energy need.

Finally, the Revised DEIR fails to acknowledge that there is no guarantee that the gas provided by this project will stay in California. On the contrary, as noted by Rich Ferguson of the Center for Energy Efficiency and Renewable Technologies, gas brought into California through LNG terminals could move out of the State to other parts of the country. "The politicians are going around pretending that if we build a terminal it is now our gas, but it's going to go on the pipeline and be sold nationwide just like all the rest of the gas."[21]

1.2.4 Increasing Dependence on Foreign Sources for the Supply of Natural Gas

The Revised DEIR fails to disclose that BHP will deliver LNG (assuming the project goes forward) to the highest bidder, and that there is no guarantee that the gas will be delivered to either California or the United States.[22] The high capital costs of building the facilities, infrastructure and LNG tankers require project proponents to secure long-term contracts that will ensure the economic investment necessary to render their project viable. LNG is a global market, and BHP – like any other LNG proponent – will ship its gas to the highest bidder. Japan, South Korea, China, India, Spain and France will all be competitors for natural gas.

For this reason, State Senator Escutia called for a hearing to determine the State's future energy needs, and the role of LNG in the State's future. As noted by Lawrence Lingbloom, a staff member for the California Committee on Energy, Utilities and Communications, a major concern about LNG is that it could be diverted to other international markets. In addition, importing LNG could cause a reduction in domestic production, which would eliminate any potential benefit.[23]

International competition has already had an effect on U.S. gas supplies. In January 2006, LNG originally scheduled for delivery to a terminal in Cove Point, Maryland, was redirected to Europe.[24]

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[21] / SNL Financial, Energy & Natural Gas – LNG, *California gas supply raises questions among state lawmakers,* April 13, 2006.
[22] / Associated Press, *Natural gas imports leave U.S. vulnerable*, February 12, 2006.
[23] / SNL Financial, Energy & Natural Gas – LNG, *California gas supply raises questions among state lawmakers,* supra.
[24] / Associated Press, *Natural gas imports leave U.S. vulnerable*, supra.

G207-49 Continued

G207-49 Continued

G207-50

G207-51

G207-52

G207-53

G207-50
As stated in Section 1.0, the Applicant proposes to deliver an annual average of 800 million cubic feet per day (MMcfd) of natural gas (not LNG) to shore for distribution by the southern California Gas Company (SoCalGas).

As indicated in Section 4.6.2, BHPB has stated that 18 entities have executed letters of interest in the possible purchase of natural gas when it becomes available from Cabrillo Port. These prospective customers represent a range of natural gas purchasers including utilities, electricity generators, cogenerators, manufacturers, and trade groups.

G207-51
See the response to the preceding comment.

G207-52
No action has been taken on Senator Escutia's Senate Bill 1003 since August 2005, when a hearing was cancelled at the request of the author.

G207-53
Thank you for the information, which could be taken into account by decision-makers when they consider the proposed Project.

1.2.5 Applicant's Purpose and Objectives

Although it is the responsibility of the lead agencies to define the purpose, need and objectives under NEPA and CEQA, the Revised DEIR includes the applicant's statement of purpose and objectives. BHP first lists the need to address California's growing demand for clean-burning natural gas, "thus furthering the national goal of energy sufficiency." This statement is both misleading and inaccurate. First, neither BHP nor the State of California has demonstrated a need for LNG. As stated above, the State has refused to conduct an assessment of the need for LNG. Second, describing LNG as "clean-burning" gives the impression that LNG is a "clean" energy supply. In fact, producing, transporting and regasifying LNG is a tremendously polluting operation and contributor to climate change. Finally, importing LNG reduces our ability to become energy sufficient because it is a foreign source of energy that is subject to political, economic, and other influences and could just as easily be sold to other countries.[25] G207-54

BHP then states that importing LNG will provide California consumers access to sources of natural gas from the Pacific Rim and "[p]rovide greater flexibility and reliability in gas providers." As previously stated, (1) there is no guarantee the gas will be sold to consumers in California; (2) reliance on a foreign supply of gas will make California vulnerable not only to the countries that produce the gas but also the country and operator that will sell the gas to the highest bidder. G207-55

Finally, BHP asserts that the project will deliver 800 MMcfd of natural gas to the Southern California area. First, there is no guarantee the gas will be purchased for use in Southern California. Second, some areas of Southern California may not be able to use the gas due its "hot" characteristics. (See comments below, under Air Quality.) In fact, because the Revised DEIR admits that the source of gas is unknown,[26] it is impossible to ascertain whether the quality of the natural gas will be appropriate for purchase and use in California. G207-56 G207-57

Clearly, from a reliability standpoint, it would be preferable to rely on a domestic supply of natural gas. In addition, the environmental impacts from domestic supplies are less. G207-58

1.3 PURPOSE AND SCOPE OF THE EIS/EIR

The Revised DEIR references federal Executive Order 12114, which requires Federal agencies to consider the potential environmental effects of projects that could significantly affect the "global commons." (Revised DEIR at p. 1-14.) However, the Revised DEIR then states that this Order is not applicable to the extraction and development of natural gas in foreign countries because such activities are under the jurisdiction of the laws of the country from which the gas is produced. (Id. at pp. 1-14, 15.) However, under both NEPA and CEQA, the lead agencies must disclose the effects G207-59

[25] / Id.
[26] / See Revised DEIR at pp. 1-14, 15.

G207-54
Section 1.2.1 of the document clearly states the lead agencies' responsibilities to define a project's "purpose and need."

As discussed in Section 3.3.2, renewable energy resources are not evaluated as a reasonable alternative to the proposed Project because such sources are already factored into California's energy supply and demand analyses, which conclude that additional supplies of natural gas are necessary, after full consideration of the projected contributions of renewable sources, to meet California's projected energy demands.

Sections 1.2.2 and 1.2.3 contain information on natural gas needs in the U.S. and California. Forecast information has been obtained from the U.S. Department of Energy's Energy Information Agency and from the California Energy Commission. LNG is natural gas that has been liquefied for transportation purposes. As stated in Section 1.2, "[n]atural gas burns cleaner than other fossil fuels, which meets other societal goals such as reduced air pollution." As stated in Section 1.2.5, "[t]he natural gas delivered by the Project would be relatively clean burning compared to other fuel sources and would meet all California regulatory specifications for pipeline natural gas without further treatment..." As stated in Section 1.2.4, "[w]hile energy independence is a national goal, it is influenced by other national considerations such as energy sufficiency, energy security, and the United States economy. In light of the EIA's projections, natural gas imports are necessary to ensure a reliable alternative energy source that enhances the nations diversity of energy supplies and energy sufficiency and supports a thriving United States economy." Further, California currently imports 85 to 90 percent of its natural gas from outside California. See Section 1.2.4.

G207-55
As stated in Section 1.0, the Applicant proposes to deliver an annual average of 800 million cubic feet per day (MMcfd) of natural gas (not LNG) to shore for distribution by the southern California Gas Company (SoCalGas).

G207-56
See the response to the preceding comment and Comment G207-161.

G207-57
Section 2.2.1 contains information on the properties of natural gas to be imported by the proposed Project, which would meet California's requirements for pipeline-quality gas throughout Project

operations and would be confirmed through testing of every shipment. See also the response to the last comment on page 9.

G207-58
Sections 1.2.2 and 1.2.3 contain information on natural gas needs in the U.S. and California and the issues associated with domestic supply, such as increased competition from other states to satisfy the regional natural gas demand, and the dominant effect he U.S. natural gas market has upon California prices.

G207-59
The proposed Project is not under the regulatory control of any single jurisdiction; it is governed by the laws, rules and regulations of the involved jurisdiction. As indicated in Section 1.3, the activities within Australia are subject to the Commonwealth Environmental Protection and Biodiversity Conservation Act of 1999 and the Western Australian Environmental Protection Act of 1986 (Macfarlane 2005, see Appendix L). Environmental legislation similar to NEPA/CEQA is also in effect in both Malaysia and Indonesia. Marine transport is governed by international law, treaty, etc. As required by law, the Final EIS/EIR identifies the potential direct and indirect impacts within Federal, State and local jurisdictions. Information from each of the above sources is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

of a project, even where the effects may occur outside the agency's jurisdiction. In this case, as discussed below, the EIS/EIR must consider not only the direct effects of the project, but also the indirect effects caused by the production and processing of the gas overseas as well as the transportation of LNG to U.S. waters. These effects include air, water and noise pollution as well as significant contributions to climate change.

1.4 CEQA RECIRCULATION

1.4.1 Reason for Recirculation

The Revised DEIR states that although the California State Lands Commission (CSLC) has determined that modifications to the proposed project and potential impacts constitute "significant new information" under CEQA and thus require recirculation of the draft document, the USCG and MARAD "have determined that there is not a need to recirculate the Draft EIS under NEPA." (Revised DEIR at p. 1-18.)

This determination is in direct violation of NEPA, which requires preparation and circulation of a Revised DEIS if the DEIS is so inadequate as to preclude meaningful analysis.[27] In this case, many of the changes to the environmental review are a result of inadequate analysis in the original DEIS rather than due to modifications to the project. For example, the safety, air and view impact analyses in the original DEIS were deficient and were changed significantly in the Revised DEIR. These revisions were necessary to provide a more meaningful analysis and thus require recirculation under NEPA.[28]

In addition, NEPA requires agencies to prepare a supplement to either a draft or final EIS if there are substantial changes in the proposed action that are relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns.[29] In this case, the preparers of the Revised DEIR admit that "the Project modifications and potential impacts thereof constitute 'significant new information'" and thus require recirculation under CEQA. (Revised DEIR at p. 1-18.) This new information regarding project modifications and impacts similarly requires preparation of a supplemental DEIS under NEPA.[30]

1.4.2 Major Changes to the Project and Analyses Since the October 2004 Draft EIS/EIR

The Revised DEIR notes the following project changes that require recirculation of the DEIR:

- Changes in the FSRU dimensions

[27] / 40 CFR §1502.9(a).
[28] / Id.
[29] / 40 CFR §1502.9(c).
[30] / A supplemental DEIS shall be prepared and circulated in the same fashion (exclusive of scoping) as the original DEIS. 40 CFR §1502.9(c)(4).

G207-59 Continued

G207-59
Continued

G207-60

G207-61

G207-60
Section 1.4.1 contains information on the reasons the Revised Draft EIR was recirculated in March 2006, which was based on an interpretation of State CEQA Guidelines. However, NEPA uses a different standard, stated in 40 CFR 1502.9. The environmental staffs of the USCG, MARAD, and the CSLC worked together to complete this Final EIS/EIR in accordance with NEPA and the CEQA to assess the environmental impacts associated with the construction, operation, and maintenance of facilities proposed by the Applicant.
The USCG and MARAD determined that no new circumstances or information requiring a recirculation of a supplemental draft EIS was found to exist. The USEPA, which comments on the completeness of EISs and their compliance with NEPA, reviewed the October 2004 Draft EIS/EIR and concluded that it was adequate. As required by NEPA, the lead agencies have prepared a response to every comment received on the October 2004 Draft EIS/EIR.

Changes to the Project and the environmental analysis described in the March Revised Draft EIR do not require further circulation of the document under NEPA. The changes are part of a typical NEPA process and many of the changes describe how the Project will have reduced environmental impacts. The changes also amplify and clarify prior text.

G207-61
See the response to the preceding comment.

- Changes in the offshore pipeline route
- Changes in the pipeline installation method for the shore crossing
- Changes in the onshore pipeline route
- Addition of gas odorant injection
- Additional information regarding alternatives.

In addition, the Revised DEIR states that the following changes in analysis require recirculation of the DEIR:

- Changes in the analysis of Public Safety impacts, as a result of using different methodologies and incorporating a new independent review by Sandia National Laboratories
- Changes in the analysis of Air Quality impacts, including a significant change in applicable rules for the proposed project and elimination of certain requirements under the Clean Air Act.

These changes require recirculation under NEPA as well as CEQA.

2.0 DESCRIPTION OF THE PROPOSED PROJECT

The Revised DEIR Fails to Include the "Whole of the Project"

As noted in our earlier comments, the proposed project is described too narrowly. The Revised DEIR focuses only on the portion of the project in the "vicinity" of the FSRU and associated pipelines, and ignores the bulk of the activities necessary to bring the LNG to the state: the production and liquefaction of the natural gas, and the transportation of the LNG overseas.

Both CEQA and NEPA prohibit segmenting or piecemealing projects to minimize the analysis of environmental effects. Under CEQA, an EIR must consider the "whole of an action" to ensure disclosure of both direct as well as reasonably foreseeable indirect effects on the environment.[31]

Similarly, under NEPA, an agency must consider "connected actions" in an EIS.[32] "Connected actions" are defined as actions that:

> (i) Automatically trigger other actions which may require environmental impact statements. (ii) Cannot or will not proceed unless other actions are

[31] / CEQA Guidelines §15378(a); Bozung v. Local Agency Formation Commission, 13 Cal.3d 263 (1975).
[32] / 40 C.F.R. §1508.25.

G207-61 Continued

G207-61 Continued

G207-62

G207-62
See the response to the last comment on page 12.

Table 1.4.1 and Section 1.5 contain information on scoping comments received. Section 1.3 contains information on all phases of the project, including the extraction of natural gas.

The proposed Project, or "whole of the action" (State CEQA Guidelines section 15378) involves the construction and operation of the Cabrillo Port LNG Deepwater Port and related facilities by a private applicant, BHPB. This is the action for which BHPB has applied for a lease from the CSLC and for which it will be required to obtain approvals from the USCG, MARAD, and other Federal, State, and local agencies. The production of natural gas in other countries, which may serve as the supply of LNG, is related to the proposed Project, but is a separate undertaking that is not a component of this Project. The Project or "whole of the action" must be distinguished from the indirect effects that may be attributed to the proposed Project or how the Project contributes to a cumulative impact. In compliance with NEPA and the CEQA, the EIS/EIR analyzes the indirect and cumulative effects of this proposed Project on a broad geographic area, including effects within California Coastal Waters associated with shipping LNG to the FSRU. (See also the response to the comment at the bottom of page 12 and the top of page 13 of this letter regarding environmental laws applicable to natural gas production in potential source countries.)

The Applicant is required to adhere to all applicable Federal, State, and local laws, regulations, and permit requirements in the execution of all phases of the Project. Section 4.2.6 states, "The environmental and occupational safety record for the Applicant's worldwide operations, including, for example, mining ventures overseas, was not considered in evaluating potential public safety concerns associated with this Project because such operations are not directly comparable to the processes in the proposed Project." The conclusions in the EIS/EIR are based on the analyses of potential environmental impacts of the proposed Project and the implementation assumptions stated in Section 4.1.7. However, the Applicant's safety and environmental record will be taken into account by decision-makers when they consider the proposed Project.

Section 15000 of the State CEQA Guidelines states, in part, "The

regulations contained in this chapter are prescribed by the Secretary of Resources to be followed by all state and local agencies of California in the implementation of the California Environmental Quality Act."

The stated position must also be viewed within the context of sections 15040 and 15041 of the State CEQA Guidelines, which specifically define and correspondingly limit the authority provided to State and local agencies under the CEQA.

Section 15378(a) of the State CEQA Guidelines states, in part, "Project means the whole of an action..." This must be interpreted in conjunction with section 15378(a)(3), which states, "An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies." When read in conjunction with section 15000, it is clear that the law and any document prepared under its previsions apply to California public agencies.

> taken previously or simultaneously. (iii) Are interdependent parts of a large action and depend on the larger action for their justification.[33]

In this case, the production of the source natural gas and the shipment of the LNG are inextricably intertwined with the proposed project. In fact, the proposed project could not proceed without the production and shipment of the gas. Therefore, the Revised DEIR must analyze the full scope of the proposed project and the impacts associated therewith, as identified in our earlier comment letter.[34]

The Revised DEIR Fails to Adequately Identify the Source of the Gas

According to the Revised DEIR, the applicant is not sure where the natural gas will be produced. The Revised DEIR states that the gas may come from either Australia or Indonesia. (Revised DEIR at pp. 1-15, 2-14.) However, the analysis in the report is based on production from the Scarborough Field in Australia. To make matters worse, USEPA states that the gas "will be imported to the U.S. from Malaysia, Indonesia *and* Australia." (Emphasis added.)[35] Accordingly, the Revised DEIR must be revised to disclose the impacts of producing and importing gas from Malaysia and Indonesia.

Although BHP Billiton's initial intent may have been to produce gas from the Scarborough Field offshore Australia, information is available that indicates that this field may not be able to supply the gas necessary for the project. In fact, Exxon, the operator of the Field, has publicly stated that gas supplies are not adequate to support an LNG facility, and that BHP's estimates are "very high." Even the Australian government estimates the reserves are about half of BHP's estimates.[36]

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[33] / 40 C.F.R. § 1508.25(a)(1).

[34] / See Thomas v. Peterson, 753 F.2d 754, 757 (9th Cir. 1985), Save the Yakk Comm. v. Block, 840 F.2d 714, 720 (9th Cir. 1988).

[35] / U.S. EPA, *Cabrillo Port Air Permit: Fact Sheet on Proposed Cabrillo Port,* http://www.epa.gov/region9/liq-natl-gas/index.html. May 2006.

[36] / Oil and Gas News Worldwide, *Exxon opposes BHP plan,* April 17-23, 2006; Reuters, *BHP Billiton, Exxon Mobil spar over gas field,* 12/3/05; Wall Street Journal, *California Official Raises Doubts on Australian LNG Plan,* 4/15/05; The Age, *BHP and ExxonMobil in gas dispute,* 4/11/05; Alexander's Gas & Oil Connections, Company News: E & SE Asia, *BHP's dispute with ExxonMobil puts LNG plan in doubt,* 5/10/05.

Although recent press articles note that BHP has completed a new appraisal of the Scarborough Field, resulting in renewed discussions with Exxon, Exxon continues to refuse to support the Cabrillo Port project. In one article, for example, Exxon spokesperson Rob Young stated that "it was too soon to talk about any commercial development of the [Scarborough] field." Moreover, an Exxon spokesperson in Melbourne said that Exxon was "'considering all options' and stressed it had not agreed that BHP's LNG plans were the best way to use the reservoir." In another article, Exxon "fell short of agreeing to BHP Billiton's plans to use the gas to supply North America." In fact, Exxon has refused to participate in a pre-feasibility study for BHP's proposed Pilabra LNG plant and has stated that "there's 'no suggestion' it would participate in BHP Billiton's Cabrillo Port terminal project." Without a feasibility study, and with no

G207-62 Continued

G207-62 Continued

G207-63

G207-64

G207-62 Continued

G207-63
Sections 1.3 and 2.2.1 discuss potential sources of natural gas that would be imported for the proposed Project. Section 1.3 is revised to include information on Indonesian and Malaysian environmental requirements that would regulate impacts related to the production and exportation of natural gas. All three countries, Australia, Indonesia, and Malaysia, have existing LNG liquefaction facilities. Due to global demand for natural gas, it is expected that viable gas fields in these countries will be developed to meet that demand, regardless of whether this Project proceeds. Accordingly, environmental impacts associated with natural gas development in Australia, Indonesia, and Malaysia, and any corresponding environmental impacts in those countries, are not a consequence of this Project and are not evaluated in the EIS/EIR.

G207-64
See the response to the preceding comment.

In addition, it should be noted that the facilities and pipelines necessary to produce the natural gas do not exist, and that BHP has not conducted a feasibility analysis or environmental review.[37]

This gap in the project description is significant. Without defining the source of the gas, it is impossible to (1) ascertain the air quality impacts of the project, and (2) evaluate the entire scope of the proposed action and the indirect effects.

With respect to the first concern, the chemical quality of the gas is critical to determining the emissions that will result as the gas is used. Gas from the Scarborough is allegedly of higher quality and results in lower NOx emissions. However, if Cabrillo Port imports "hotter" gas from another region, combustion could increase project vessel emissions and emissions from the end use of imported hot gas in both residential and non-residential natural gas fired equipment. As discussed in more detail regarding air quality impacts, these increased NOx emissions would not only result in increased air pollution impacts, but would also affect the ability of the project to conform to applicable state and local air quality rules.

The Revised DEIR Fails to Clearly Identify the Source of Fuel for the LNG Tankers

The Revised DEIR states that the LNG tankers, tugboats and crew/supply boats will run "primarily" on natural gas within 25 miles of shore. (Revised DEIR at pp. 4.6-15, 16, 34.) However, it is not clear what fuel the tankers will use beyond 25 miles. Renee Klimczak, President of BHP LNG International, has admitted that the tankers will be built to run on either LNG boil-off or diesel, and that the company has not committed to run the tankers on only LNG. (Pers. Com. 4/21/06.)

In addition, the tankers may need to run on diesel fuel *even within 25 miles of shore*. As noted in the Draft EIS/EIR for the Long Beach LNG Import Project, the use of fuel oil may increase as the ship approaches the port "because the natural gas fuel supply system is complicated with greater risk of shutdown. Therefore, the additional fuel is used for safety to ensure adequate steam supply for propulsion."[38] Diesel-driven electric generators may be used for both propulsion and electric power. (Id.)

G207-65

G207-66

G207-67

G207-68

assurances that Exxon, the operator of the Scarborough Field, supports developing the field or exporting the gas to the United States, it is impossible to know whether BHP will be able to secure a reliable gas supply from the Scarborough Field. The Sydney Morning Herald, *BHP and Exxon in closer step*, May 3, 2006; Australian Financial Review, *Exxon goes to Scarborough field,* May 3, 2006; The Australian, *Exxon OKs Scarborough*, May 3, 2006; Bloomberg, *Exxon Joins BHP in Seeking to Develop Scarborough Field,* May 2, 2006.

[37] / Heede, Rick, Climate Change Services, *LNG Supply-Chain Emissions: Australia to Offshore Ventura,* April 2006.

[38] / Draft EIS/EIR for the Long Beach Sound Energy Systems LNG Project, p. 2-12, October 2005.

G207-65
See the response to the last comment on page 12.

G207-66
See the responses to Comments G207-44 and G207-57. The appropriateness of addressing the end uses of natural gas from the proposed Project is discussed in Section 4.6.2 of the Final EIS/EIR.

As discussed in comment responses on page 14, the Applicant would be required to comply with those countries' applicable environmental laws and regulations pertaining to the extraction and development of natural gas fields as well as those pertaining to the liquefaction and transfer of LNG to LNG carriers. Consideration of the Applicant's compliance with a foreign nation's applicable laws and regulations is beyond the scope of this EIS/EIR.

G207-67
See the response to the preceding comment.

G207-68
The Project has been modified since issuance of the March 2006 Revised Draft EIR. See Section 1.4.2 for a summary of Project changes. LNG carriers would be powered by natural gas within California Coastal Waters as defined by the California Air Resources Board (CARB) (see Section 4.6).

This issue is critical for several reasons. First, the emissions beyond 25 miles will impact both onshore as well as offshore air quality. (See comments on Air Quality, below.) Second, if the LNG tankers are to run on full or partial diesel fuel, that will significantly increase air quality impacts, both regionally and globally. Finally, if the tankers will use diesel, the impacts to climate change will increase substantially. G207-69

The Revised DEIR Fails to Analyze Impacts based upon the Maximum Capacity of the Project

The Revised DEIR notes that the maximum capacity of the FRSU would be 1.5 billion cubic feet per day, almost double the "average" capacity of 800 million cubic feet per day. (Revised DEIR at p. 2-24.) This increased capacity is derived from the proposed second berth and increased regasification capacity of the FSRU, and would result in a significant increase in environmental impacts. However, rather than evaluate and disclose these impacts, the Revised DEIR states that such review will occur later. (Revised DEIR at p. 2-16.) G207-70 G207-71

This deferral of environmental analysis violates CEQA and NEPA, which require review of reasonably foreseeable impacts from a proposed project.[39] Given that the FSRU will be constructed with the second berth and extra regasification capacity, it is certainly reasonably foreseeable that the increased production will occur. Increasing production at the plant will increase impacts to air quality, marine traffic, water quality, public safety, noise and marine wildlife. G207-72

3.0 ALTERNATIVES

In our prior comments, we noted that the alternatives analysis in the DEIS/EIR was too narrow and failed to provide the lead agencies with a reasonable range of options that could reduce or avoid significant adverse impacts associated with the proposed project. Now that the Revised DEIR admits that safety, air and visual impacts will be greater than previously thought, it is all the more important for the DEIR to evaluate a *range* of alternatives and provide the agencies with an opportunity to select an alternative or alternatives that will address the State's energy needs without compromising our public health, safety and environmental concerns. G207-73

As the USEPA noted in March, 2004, "[a] rigorous alternatives analysis is particularly important."[40] EPA advised the lead agencies to consider alternative project locations, including land-based alternatives, as well as alternative technologies, including open-rack vaporizers and alternative floating designs. Contrary to this directive from a federal G207-74

[39] / CEQA Guidelines §15378(a); Bozung, *supra*; Mid States Coalition for Progress, et al. v. Surface Transp. Board, 345 F.3d 520 (8th Cir. 2003).

[40] / U.S. EPA Region IX, *Subject: Notice of Intent to Prepare Draft Environmental Impact Statement/Report, Cabrillo Port Liquefied Natural Gas Deepwater Port offshore Ventura County, California,* March 31, 2004.

G207-69
See the response to the preceding comment.

G207-70
Section 1.0, "Introduction", has been updated to more clearly specify the throughput figures used in the environmental analysis. As stated, "Under normal operating conditions, the annual average throughput would be 800 million cubic feet per day; however, the Applicant has calculated that maximum operating scenarios would allow deliveries of up to 1.2 billion cubic feet per day, or the gas equivalent 1.5 billion cubic feet per day on an hourly basis for a maximum of six hours. These operating conditions would only be in effect if SoCalGas were to offer the Applicant the opportunity to provide additional gas in cases of supply interruption elsewhere in the SoCalGas system, or extremely high power demand, for example, during hot summer days." In addition, the Air Quality, Biological Resources - Marine, and Noise and Vibration, Water Quality Sections have been revised to account for the variations in natural gas throughput (see Sections 4.6.4, 4.7.4, 4.14.4, and 4.18.4).

G207-71
First, the capacity of the FSRU is 72 million gallons of LNG. The comment confuses the capacity of the FSRU with the throughput of natural gas from the FSRU into the SoCalGas system. Section 1.0, "Introduction," has been updated to more clearly specify the throughput figures used in the environmental analysis. As stated, "Under normal operating conditions, the annual average throughput would be 800 million cubic feet per day; however, the Applicant has calculated that maximum operating scenarios would allow deliveries of up to 1.2 billion cubic feet per day, or the gas equivalent 1.5 billion cubic feet per day on an hourly basis for a maximum of six hours. These operating conditions would only be in effect if SoCalGas were to offer the Applicant the opportunity to provide additional gas in cases of supply interruption elsewhere in the SoCalGas system, or extremely high power demand, for example, during hot summer days." In addition, applicable sections of the document have been updated similarly to clarify the throughput figures used in the analysis, including Sections 4.6, 4.7, 4.14, and 4.18. The document reveals, therefore, the full range and intensity of all potential environmental impacts associated with the proposed Project.

As stated in Section 2.2.2.3, the proposed Project includes a "single berth and LNG receiving facility to be located on the starboard side of the FSRU initially, with an option to install similar facilities on the port side at a later date. The second berth, if added, would provide

operational flexibility under unusual conditions and would never be used simultaneously because no more than one LNG carrier at a time would unload." The potential, but as yet unforeseen as to its timing, of an additional berth would neither change the capacity of the FSRU nor its throughput as analyzed in the EIS/EIR.

Furthermore, additional modifications to the SoCalGas onshore pipeline system, which are not part of the application submitted by the Applicant, would be necessary to accommodate throughput above and beyond that from the proposed Project.

G207-72
As discussed in the previous comment response, the document has been revised to address the potential differences in impacts according to the variations in natural gas throughput.

G207-73
Due to changes in the Project, the March 2006 Revised Draft EIR and the Final EIS/EIR contain updated analyses. Section 4.2 contains information on public safety. Section 4.6 contains information on air. Section 4.4 contains information on views. Sections 1.2, 3.1, 3.2, 3.3.1, 3.3.2, 3.3.3, 4.10, and 4.10.1.3 contain information on the range of alternatives evaluated. Under NEPA and the CEQA, a reasonable range of alternatives must be considered. NEPA requires consideration of a "reasonable" number of alternatives. In determining the scope of alternatives, the emphasis is on "reasonable." "Reasonable" alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a). The information must be sufficient to enable reviewers and decision-makers to evaluate and compare alternatives. The State CEQA Guidelines section 15126.6(a) provides, in part,

"An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project."

The EIS/EIR initially evaluated 18 locations for the FSRU as potential locations for the deepwater port. It built on previous California Coastal Commission studies that evaluated nearly 100 locations. Section 3.0 discusses the issue of alternatives in detail and sections 3.3.7 and 3.3.9 specifically discuss alternate locations and technologies that were considered.

G207-74
The USEPA letter was a scoping comment letter, and as requested, all of these alternatives were considered in the EIS/EIR. The USEPA did not indicate that all of these potential alternatives must be carried forward in the analysis; the assessment must be based on the analysis of the potential alternatives. The EIS/EIR implemented the recommendations and considered all of the recommended alternatives. The USEPA classified the Draft EIS/EIR as EC-2. The USEPA did not comment on the alternatives analysis that appeared in either the October 2004 Draft EIS/EIR or the March 2006 Revised Draft EIR. It should be noted that, as indicated in the comment, the cited agency is the federal USEPA, which is neither a responsible or trustee agency under the CEQA under whose provisions the Revised Draft EIR was prepared. The USEPA's comment letters appear in this Final EIS/EIR as 2004 Comment Letter F007 and 2006 Comment Letters F205 and F206.

agency with permitting authority for the project under the Clean Air Act and Clean Water Act, the Revised DEIR rejects all of these alternatives without full analysis.

3.3 ALTERNATIVES ELIMINATED FROM FURTHER ANALYSIS

Table 3.2-1 in the Revised DEIR identifies the many alternatives that were suggested yet eliminated from consideration in the EIR. These rejected alternatives include:

- Energy conservation
- Renewable energy sources
- Retrofitting existing power plants
- New or expanded pipeline systems
- Other proposed LNG projects
- Other types of LNG facilities and technologies

The result of this overwhelming rejection of alternatives is that the Federal lead agencies are left with no real alternative to consider. There are no alternatives that would meet the State's energy demand absent the importation of LNG. The only alternative location is one that is clearly infeasible and is not proposed by any of the many LNG companies. Although there are at least four other LNG projects proposed to supply gas to California, and more projects proposed for Baja and Oregon that would also provide natural gas to California, *none of them* are considered as alternatives to the proposed project. One of the Baja projects is even under construction, and yet not considered. In addition, the Revised DEIR does not consider domestic natural gas supplies that can help meet California's energy demand.

As set forth herein, credible substantial evidence exists to demonstrate that energy conservation and efficiency can provide 250% as much energy as would be supplied by the proposed LNG project.[41] In addition, increases in renewable supplies can provide approximately 100% as much energy.[42] Together, energy efficiency and renewable supplies can provide up to 350% as much energy as the proposed project.

Another perspective is provided in the attached report prepared by the Santa Barbara Community Environmental Council. The SBCEC report addresses the point made in the Revised DEIR that certain increases in energy efficiency and renewable supplies are already planned by California. As the SBCEC report points out, however, even accounting for these planned measures, additional increases in efficiency and renewables can provide 230% as much energy as the proposed LNG project.[43] The discussion below

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[41] / See EDC/CCPN comment letters regarding the Cabrillo Port LNG draft EIS/EIR, 12/04, incorporated herein by reference.

[42] / Id.

[43] / Hunt, Tam, Community Environmental Council, *Does California Need Liquefied Natural Gas? The Potential for Energy Efficiency and Renewable Energy to Replace Future Natural Gas Demand,* April 2006.

G207-74 Continued

G207-74 Continued

G207-75

Sections 1.2.2, 1.2.3, 1.2.4, 1.2.5 and 3.3 contain information on the adequacy of alternatives. Under NEPA and the CEQA, a reasonable range of alternatives must be considered to permit a reasoned choice of alternatives with respect to their environmental aspects.

Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

G207-76

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an

agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements. Revisions to Chapter 3 clarify and elaborate on the "Alternatives Eliminated from Further Analysis" and "Alternatives Evaluated in Chapter 4."

As discussed in Sections 3.3.1 and 3.3.2, energy conservation and use of renewable energy sources do not meet the projected energy needs of California, as determined by the California Energy Commission in its 2005 Integrated Energy Policy Report Committee Final Report. The projected energy gap is to be filled by seeking additional supplies of natural gas, including LNG. The project goal of fulfilling California's and the nation's short- and mid-term natural gas supply needs or diversifying the supply of natural gas should be viewed in this context.

Section 3.2 identifies the range of alternatives considered. Section 3.3 discusses 18 potential locations for the deepwater port. It builds on previous California Coastal Commission studies that evaluated nearly 100 locations. In addition, Table 3.2-1 identifies six alternative technologies that are evaluated.

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would maintain, for an indeterminate time, the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

As discussed in Sections 3.3.1 and 3.3.2, the MARAD and the CSLC do not have the authority to initiate or implement additional broad-based, long-term conservation or renewable energy policy measures. They also do not have control over whether such measures will be proposed, approved, and implemented, or the time frame over which these actions might occur. Nonetheless, the agencies' actions could impact the State's energy supply mix. Any

decision by the government to increase subsidies or otherwise promote additional conservation or renewable energy would be independent actions taken on this DWP application by MARAD and the CSLC.

G207-76
See the responses to comments on pages 9 and 10 of this letter. Based on the Energy Commission's information (see Section 4.10.1.3), reliance solely on energy conservation and efficiency, renewables, or a combination thereof, to meet California's energy needs is considered inadequate speculative and an infeasible alternative to meet California's increasing demands for replace the energy in the short- and mid-term. These options are not considered to be potentially feasible alternatives to the proposed Project and therefore are not carried forward for detailed analysis in the EIS/EIR. In addition, energy conservation and efficiency, renewables, or a combination of these actions would not accomplish most of the Project objectives, which include supplying energy in the form of natural gas and diversifying the State's supply of natural gas. For this additional reason, the suggested options were not carried forward for detailed analysis in the EIS/EIR. The information you have provided in this comment will be made available to the decision-makers when they consider the EIS/EIR and the Project.

points out that two current proposals alone – the Tehachapi wind project and the Imperial Valley solar/geothermal project - would provide the same energy as the proposed Cabrillo Port project.

3.3.1. Energy Conservation

Notwithstanding the availability of cleaner sources of energy, consistent with our State's Energy Action Plan, the Revised DEIR rejects all of these sources *without analysis*. Energy conservation and efficiency are rejected as alternatives because (1) such measures are ongoing and will occur regardless of whether the project proceeds; (2) even with such measures, California will still have a need to import LNG; and (3) MARAD and the CSLC do not have authority to initiate or implement additional conservation measures. We offer the following responses.

First, the statement in the Revised DEIR that even with increases in conservation, LNG supplies will be necessary to meet California's demand is misleading and inaccurate.[44] The Revised DEIR focuses only on currently *mandated* measures, and fails to consider additional conservation goals and potential that will more than compensate for the energy that would be provided by the proposed project. For example, as noted in the attached report by SBCEC, an additional 24,997 GWh per year can be saved through additional energy efficiency. Add to that an additional 50,808 GWh that could be achieved by re-powering California's aging non-peaking natural gas plants, and it is clear that additional efficiency measures can meet more of the State's projected increase in energy demand than an LNG facility (which would provide approximately 60,000 GWh).[45]

If the State is expected to have a 7% unmet increase in natural gas demand, as stated in the Revised DEIR, pursuing non-mandated energy efficiency goals and re-powering natural gas plants will more than account for this projected increase in demand.[46] In fact, this is an outdated figure. The most recent growth estimates from the CEC are an annual growth of 0.55% per year through 2016.[47] Accordingly, it is even more apparent that conservation and efficiency can meet the energy needs of the State.

Second, as noted in the section on Energy below (Revised DEIR, §4.10), importing LNG to California will have the unintended and undesirable effect of interfering with the State's goals for increasing energy conservation and efficiency. This effect will occur for two reasons: (1) investing utility funding in long-term contracts for LNG will decrease funding available to invest in major efficiency projects such as upgrading power plants; and (2) these contracts will change energy pricing so that there will be less incentive to increase conservation.

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[44] / Even if this statement were true, an alternative should not be dismissed because it will not meet all the project objectives (e.g., supply the exact same amount of energy). Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Dir 1972).

[45] / Hunt, T., *supra*.

[46] / Id.

[47] / Id.

G207-76 Continued

G207-76 Continued

G207-77

Please see the revisions to Chapter 3, which elaborate on the previous analysis.

G207-77

Thank you for the information on energy conservation and repowering of existing power plants. However, the lead agencies are obligated to use energy forecasting information from the Federal Energy Information Administration (EIA) and the California Energy Commission (CEC). As discussed in Section 1.2.2, the Federal EIA is a "primary source of the data on the Federal energy forecasts and analyses used in this document. The EIA, created by Congress in 1977, is part of the U.S. Department of Energy. The EIA provides policy independent data, forecasts, and analyses to promote sound policy-making, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment." In addition, Section 1.2.3 discusses the use of CEC data. The CEC's 2005 Integrated Energy Policy Report Committee Final Report provides the energy context for California's natural gas needs. The California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and that the CEC is responsible for determining the energy needs of California. These responsibilities are established in State law (the Warren-Alquist State Energy Resources Conservation and Development Act [Public Resources Code, Division 15]).

G207-78

The revisions to Chapter 3 elaborate on the previous analyses. As discussed in Section 3.3.1, "[t]he MARAD and the CSLC do not have authority to initiate or implement additional broad-based, long-term energy conservation policy measures... They also do not have control over whether such measures will be proposed, approved, and implemented, or the time frame over which these actions might occur."

G207-79

With respect to retrofitting of existing power plants, "[t]he State of California's 2005 Energy Action Plan II indicates that despite energy-efficient renewable resources, other energy sources, and investments in conventional power plants such as augmenting existing facilities and replacing aging infrastructure, there is no indication that the need to increase California's short-term natural gas supplies can be averted through turbine repowering (CEC and CPUC 2005). The State's determination of the need for additional natural gas supplies takes into account the re-powering of existing power plants and still concludes that new gas supplies are needed."

See Section 3.3.3.

G207-78
First, the most recent projections for natural gas needs in California are contained in Section 1.2.3. Second, see the responses to comments on page 18 of this letter.

G207-79
Thank you for the information. As indicated in Section 1.2.3, the State of California's 2005 Energy Action has not come to the same conclusion.

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would, for an indeterminate time, maintain the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

Third, a lead agency may not reject an alternative because it does not have jurisdiction or regulatory authority over the proposal.[48] Especially in a situation such as this one, where the impact of the project will have such significant public and environmental impact, it is critical that the lead agencies examine a broad range of alternatives that can achieve the same purpose without the same level of impact.[49]

3.3.2 Renewable Energy Sources

Similarly, the Revised DEIR dismisses renewable energy on the grounds that (1) such sources are already factored into the state's energy supply and demand analysis; (2) even with such sources, the state will need to import LNG; (3) any decision of the government to increase renewable supplies would be "independent of actions taken on this DWP application;" and (4) the lead agencies do not have the authority to initiate or implement additional renewable energy programs.

As stated above, the fact that the lead agencies may not have the authority or jurisdiction to implement renewable energy sources does not relinquish their obligation to consider and analyze a full range of alternatives. As demonstrated by these comments and the attached report by the SBCEC, ongoing *plus enhanced* plans for renewable energy can provide more energy for the State than the proposed project.

There is a precise match between the proposed use of LNG to generate electricity, and the already-demonstrated capacity of renewable energy sources to provide this commodity. Clearly, some natural gas will continue to be required in the foreseeable future for certain residential, commercial, and industrial uses, such as to heat spaces and water. These are uses for natural gas that renewable sources will not replace in the short term (although they can be addressed through increased efficiency). However, natural gas is fungible between electrical and other uses; therefore, gas not needed for electricity generating power plants due to increased use of renewables can be redirected to heating and other uses.

In addition, the State's renewable portfolio standard goal of 33% electricity generation by 2020 will negate any need to use LNG electricity generating purposes. This is because renewables presently account for only a very small percentage of the energy used to generate electricity, yet fully one-third of the natural gas burned in California is dedicated to this purpose (Revised DEIR §1.2.3, citing the EIA). Therefore, rapid growth in renewables that could occur in the next 15 years would certainly replace the need to

G207-80

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[48] / Citizens of Goleta Valley v. Board of Supervisors, 52 Cal.3d 553 (1990); see also NEPA Regulations §1502.14(c); NRDC v. Morton, *supra;* Environmental Defense Fund v. Corps of Engineers of United States Army, 492 F.2d 1123, 1135 (5th Cir. 1974).

[49] / Libby Rod and Gun Club v. Poteat, 457 F.Supp. 1177, 1186-1189 (D. Mont. 1978), aff'd. and revd. in part on other grounds, 594 F.2d 742 (9th Cir. 1979) (for EIS on proposed dam, alternatives should have included energy conservation measures and alternative sources of electricity).

G207-80

Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

See also responses to Comments G207-46, G207-75, and G207-77.

provide new sources of natural gas to generate electricity, and it will do so with an extremely low level of environmental impact. A decrease in the total demand for natural gas, coinciding with the implementation of renewable technologies, can thus be predicted with confidence.

According to the attached report by the SBCEC, if California pursues the 33% goal by 2020, the State can double the amount of energy that would be provided by the proposed LNG project. Under the current goal of a 20% renewable portfolio by 2020, California can achieve 55,170 GWh. However, if the State can achieve 33% by 2020, which many experts believe to a realistic and achievable goal, an additional 47,323 GWh can be obtained, or 79% of the energy to be supplied by the proposed project.[50] Clearly, this alternative must be considered in the Revised DEIR to ensure full public disclosure and complete information for decision-makers.

For example, solar is a viable and environmentally preferable alternative to importing LNG, a fossil fuel, from overseas. In October, 2005, the CPUC approved the Stirling engine solar power project for Southern California Edison. This project is initially planned to provide 500 MW, but can be expanded to 850 MW.[51] In January 2005, the CPUC also approved $2.9 billion in rebates for residents and businesses that install solar panels over the next 11 years. "Commissioners argued that the plan will bring California much-needed electricity -- about 3,000 megawatts, equal to the output of five or six power plants -- without increasing carbon dioxide emissions. And because the power will be added one building at a time, it won't require new transmission lines."[52]

Wind power is another renewable energy supply that has an incredible potential for expanding clean energy supplies to California. According to Energy Biz insider, "[h]igh gas prices and a concerted effort to curb global warming are breathing new life into the wind industry. About 2,500 megawatts of wind power have been added to the United States' generation mix in the last 12 months, which equates to roughly 9,200 megawatts of total generating wind capacity here."[53] "The American Wind Energy Association estimates that an installed capacity of 9,200 MW of wind power will save over half a billion cubic feet of natural gas per day in 2006, alleviating a portion of the supply pressure that is now facing the natural gas industry and is driving prices upward." (Id.) Wind power plants can be permitted and built in one to two years, whereas the drilling of new natural gas fields and the construction of Liquefied Natural Gas terminals takes much longer. The wind association projects that more than 14,000 megawatts of wind capacity could be part of the nation's generation supply by the end of 2007, producing the

[50] / Hunt, T., *supra.*

[51] / California Public Utilities Commission, *California Public Utilities Commission Approves Stirling Energy System's Solar Energy Contract with Southern California Edison: World's Largest Solar Energy Farm to be built in Southern California,* October 27, 2005; Wall Street Journal, *Solar's Day in the Sun?* November 17, 2005.

[52] / San Francisco Chronicle, *State Solar Power Proposal Gets OK From Regulators,* January 13, 2006.

[53] / Energy Biz Insider, *Wind Energy is Riding High,* January 13, 2006.

G207-80 Continued

G207-80 Continued

G207-81

G207-82

G207-83

G207-81
As stated in Section 1.2.3, "[t]he California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and the CEC is responsible for determining the energy needs of California." The EIS/EIR acknowledges the contribution of energy conservation and renewables to meet California's energy needs in Sections 3.3.1, 3.3.2, and 4.10.1.3. However, the 2005 California Energy Action Plan states explicitly that "California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)."

G207-82
See response to Comment G207-80.

G207-83
As stated in Section 1.2.3, "[t]he California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and the CEC is responsible for determining the energy needs of California." Section 1.2.3 also states, "(t)he CEC demand forecasting models assume that the California investor owned utilities (and suppliers from other Western states), which are required to meet a Renewable Portfolio Standard, will meet their obligations (Marks 2006). According to the CEC, although increases in conservation, efficiency, and use of renewable energy sources are expected to moderate future demand, the policies and mandates in place do not suggest that incorporating conservation, energy efficiency, and the use of renewable energy resources will meet all future investor owned utility portfolio needs (Miller 2006)."

The EIS/EIR acknowledges the contribution of energy conservation and renewables to meet California's energy needs in Sections 3.3.1, 3.3.2, and 4.10.1.3. However, the 2005 California Energy Action Plan states explicitly that "California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)."

See the response to Comment G207-75. Thank you for the information on solar and wind projects in California and elsewhere. As discussed in Section 3.3.2, "[t]he CEC's projections of future natural gas supply needs for the State include the assumption that renewable energy projects will be implemented, yet still conclude that additional natural gas supplies are necessary."

Section 3.3.2 has been revised to include updated information about renewable energy projects in California.

G207-83 Continued

G207-83
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equivalent of 850MMcfd of natural gas. (Id.) In October of 2005, wind energy became cheaper than fossil fueled electricity in Colorado and Oklahoma, reinforcing the potential of this renewable energy technology as a mainstream energy source. (Id.)

According to E Magazine,

> Wind energy is zero-emissions energy, a renewable resource that is one of our last, best hopes for staving off devastating climate change. Wind energy has grown 28 percent annually over the last five years and the so-called "installed capacity" (the generating power of working wind turbines) doubles every three years: It is the fastest-growing energy source in the world. Some 6,000 megawatts of wind capacity – enough to power 1.5 million homes – are added annually....
>
> The economics of wind are looking increasingly good. The cost of generating a kilowatt-hour of electricity from wind power has dropped from $1 in 1978 to five cents in 1998 and is expected to drop even further, to 2.5 cents."[54]

According to the DOE, utility customers participating in green pricing programs that offer some form of protection from fossil-fuel price changes are finding that their green power premiums are shrinking or even turning negative.[55]

In California, there are two major renewable projects that combined can provide the same amount of energy as one LNG facility. These projects are the Tehachapi wind project (4,500 MW) and the Imperial Valley solar and geothermal project (2,200 MW). Together, these projects alone are capable of providing 259 bcf/year, compared to approximately 260 bcf/year from the proposed Cabrillo Port LNG project.[56]

In New England, states are realizing that switching from fossil fuels to energy efficiency and renewable supplies is not only more environmental, but it is also more affordable and reliable. A recent report, "Meeting New England's Future Natural Gas Demands: Nine Scenarios and Their Impacts," found that "[e]xpansion of fuel switching, energy efficiency, and renewable energy programs may be the **least expensive** ways to improve gas supply reliability while improving fuel diversity" [emphasis added] and "[e]xpanded

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[54] / E Magazine, *Catching the Wind: The World's Fastest-Growing Renewable Energy Source is Coming of Age,* January/February 2005.

[55] / http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=2&companyid=27, November 2005.

[56] / Tehachapi Collaborative Study Group, California Public Utilities Commission, *Development Plan for the Phased Expansion of Electric Power Transmission Facilities in the Tehachapi Wind Resource Area: Second Report of the Tehachapi Collaborative Study Group,* April 19, 2006; Imperial Valley Study Group, *Development Plan for the Phased Expansion of Transmission to Access Renewable Resources in the Imperial Valley: Report of the Imperial Valley Study Group,* presented to the California Energy Commission, 2005 Integrated Energy Policy Report, September 30, 2005.

investments in gas energy efficiency programs may yield even greater reliability enhancements and even lower overall costs than most scenarios."[57]

As discussed in section 4.10 ("Energy") below, increasing renewable supplies is not "independent" of this project. If State utilities are required to invest in long-term contracts for LNG, there will be that much less funding or incentive to invest in renewables. Simply put, imported gas will displace other ingredients in the energy supply mix, most notably renewable sources.[58]

3.3.3. Retrofitting Existing Power Plants

As mentioned above, the SBCEC report concludes that the state could save over 50,000 GWh (almost the equivalent of energy that would be supplied by one LNG project) by upgrading existing power plants. As stated above, the lead agencies cannot dismiss this alternative on the grounds that they do not have jurisdiction over this alternative.

3.3.4. New or Expanded Pipeline Systems

The Revised DEIR states that expanded pipeline systems would not meet the project objective of increasing the diversity of natural gas supplies to California. (Revised DEIR at p. 3-10.) The EIR therefore dismisses domestic and Canadian supplies as an alternative to the proposed project. However, these supplies already exist and would greatly reduce the impacts of producing gas overseas and shipping it across thousands of miles.

California could reinstate contracts to purchase natural gas from sources within the Western U.S.

First, California could simply reinstate contracts to purchase natural gas from New Mexico and Texas. As noted in the attached letter by Pacific Environment, on September 4, 2004, the California Public Utilities Commission passed, by a 3 to 2 vote, a rulemaking that authorizes the State's utilities to ***reduce*** its purchase of domestic natural gas in order to make room for imported LNG. Specifically, the CPUC voted to allow Southern California Gas Company and San Diego Gas & Electric Company (both owned by Sempra), as well as Pacific Gas & Electric Company, Southwest Gas Company and Southern California Edison Company, to terminate contracts with El Paso Natural Gas Company, Transwestern Pipeline Company and Gas Transmission Northwest, and to negotiate reduced amounts of capacity from these domestic natural gas suppliers. In the same decision, the CPUC authorized SoCalGas, SDG&E and PG&E to submit non-discriminatory open access tariffs

[57] / Power Planning Committee of The New England Governors' Conference, Inc., *Meeting New England's Future Natural Gas Demands: Nine Scenarios and Their Impacts – A Report to the New England Governors,* March 1, 2005.
[58] / Hunt, T., *supra.*

G207-83 Continued

G207-84
See response to Comment G207-77.

G207-85
Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition,

the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

Section 3.3.3 explains that this potential alternative was not included for detailed study in the EIS/EIR for multiple reasons. The lead agencies have no jurisdiction or control over such projects; the Applicant neither owns nor controls the facilities where retrofitting would occur and has neither the experience nor expertise with such activities; and the California Energy Commission has determined that the States natural gas supplies must be increased whether power plants are retrofitted or not.

G207-86
As explained in Section 3.3.4, new or "[e]xpanded pipeline systems would not meet the Project objective of increasing the diversity of natural gas supplies to California. In addition, construction of new or expanded pipeline systems would have environmental consequences along whatever corridors were proposed. Therefore, new or expanded pipeline systems were not considered as alternatives to the proposed Project."

G207-87
Thank you for the information about the CPUC's decision. The decision has already been made, and it is not reasonably forseeable that the CPUC would reverse or alter its decision over which the lead agencies have no control or jurisdiction.

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would maintain, for an indeterminate time, the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

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G207-87
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for new sources of supply, including LNG supplies.[59] Significantly, Sempra, the owner of SoCalGas and SDG&E, is the developer of an LNG facility in Baja California that will provide natural gas to California. Clearly, the Revised DEIR should evaluate the comparative impacts of reinstating domestic gas contracts versus producing gas overseas, shipping it thousands of miles across the ocean, and constructing new regasification facilities and pipeline systems.

Pursuant to the approval of reductions in domestic natural gas supply, new transportation service agreements (TSAs) were implemented between Southern California Gas (SoCalGas) and both El Paso and Transwestern pipeline companies in 2005. *Comparison of the new contracts with those existing prior to the CPUC decision in September 2004 shows that the amount of canceled capacity more than matches what can be provided by the BHP Billington LNG project.* Cancelled capacity is approximately in the amount of 1200 MMcfd, while the Cabrillo Port project is expected to deliver an average of 800 MMcfd into the Southern California area. By way of comparison, the present total consumption of natural gas in California is approximately 6000 MMcfd (CEC 2005 Natural Gas Assessment Update, cited in the Revised DEIR). Therefore, the equivalent of fully one-fifth of the total natural gas consumption by California was cancelled in the domestic contracts without a credible review of any actual need for LNG. Such a policy has clear potential to destabilize natural gas markets, possibly leading to an artificial increase in price to the detriment of California consumers.

According to comments submitted to the CPUC by Transwestern in 2004, the company operates a bi-directional system that can flow gas either west to California or east to Texas. The line to California can provide 1,210 mmcfd, 150% of the gas to be supplied by the Cabrillo Port project. In addition, there are opportunities to increase supply due to an increase in reserves from the San Juan and Permian basins.[60]

As noted by El Paso Natural Gas Company (EPNGC) and Mojave Pipeline Company (MPC) in their comments to the CPUC, the State's optimum strategy to ensure energy reliability should be to "maximize the use of the existing interstate system in order to preserve their flexibility to respond to changing supply and market conditions in the coming years." EPNGC and MPC point out that reliability on LNG could lead to disruptions in supply.[61]

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[59]/ Peevey, Michael; Brown, Geoffrey; Kennedy, Susan. Order Instituting Rulemaking to Establish Policies and Rules to Ensure Reliable, Long-Term Supplies of Natural Gas to California, Rulemaking 04-01-025. California Public Utilities Commission, January 2004. Page 97. Ratepayers for Affordable Clean Energy (RACE) has challenged this decision on the grounds that the CPUC failed to hold a public, evidentiary hearing on the need for LNG.

[60] / Transwestern Pipeline Company, *Comments of Transwestern Pipeline Company on Phase I Proposals,* before the Public Utilities Commission of the State of California, March 23, 2004.

[61] / El Paso Natural Gas Company and Mojave Pipeline Company, *Joint Comments of El Paso Natural Gas Company and Mojave Pipeline Company,* before the Public Utilities Commission of the State of California, March 23, 2004.

Proposal to Provide Natural Gas from Coos Bay, Oregon

On April 12, 2006, PG&E, Williams and the Fort Chicago Energy Partners announced that they had formalized an agreement to build and operate a pipeline that will bring gas from the proposed Jordan Cove LNG terminal in Coos Bay to Malin, California. This project is proposed to deliver 800 million to 1 billion cubic feet of natural gas per day, beginning in 2010.[62] According to PG&E, the proposal has generated interest from at least five gas utilities in the region. Id. The Revised DEIR should analyze this proposal as an alternative to the Cabrillo Port project.

Please note that in acknowledging alternative LNG proposals, CCPN and EDC do not necessarily endorse or support any of these projects. However, in the interest of providing the public and decision-makers with all of the relevant information necessary to evaluate alternatives, the Revised DEIR must disclose all of the pending and proposed LNG projects so that they can be compared to the proposed project.

3.3.5 Northern Baja Mexico LNG Terminals

The Revised DEIR fails to consider natural gas that could be imported from Northern Baja, despite the fact that there are three pending projects, two of which are under construction. The Shell/Sempra project ("Energia Costa Azul," hereinafter referred to as the "Sempra project") has been approved for 1,000 MMcfd, but recently applied for an expansion to 2,500 MMcfd.[63] The project is designed to deliver natural gas to Southern California as well as Mexico.[64]

The Revised DEIR points out that the CPUC took action in 2004 that would allow California to purchase natural gas from the Sempra project. (Revised DEIR at pp. 3-10, 11.) And yet the CSLC rejects this alternative as being infeasible. It hardly makes sense that Sempra would build this facility, and obtain approval from the CPUC to sell natural gas to California, without believing that this project is feasible.

Notably, the Sempra project is already permitted and under construction. Start-up is expected to occur in 2007. According to a recent Greenpeace report on LNG,

> A review of the natural gas use in Baja California shows that the demand is nowhere near the proposed LNG supply, and shows that Baja California could

[62] / Press release, *Williams, Pacific Gas and Electric Company and Fort Chicago Energy Partners L.P. Propose Major New Gas Transmission Pipeline Project,* February 8, 2006; E&E News, *LNG: Pacific pipeline deal inked as PG&E hedges against high natural gas prices*, April 12, 2006; Worldlink, *New line would start at terminal in Coos Bay,* February 9, 2006.

[63] / San Diego Union-Tribune, *Sempra weighs expansion of Baja LNG plant,* 3/14/06.

[64] / Shell Gas & Power, *California and Baja California Gas Infrastructure: Presentation to CPUC/CEC Workshop*, December 10, 2003; see also Greenpeace, *Liquid Natural Gas: A roadblock to a clean energy future,* 2004.

G207-88

The Jordan Cove Energy Project is jointly owned by Fort Chicago Energy Partners, L.P. and Energy Projects Development, LLC. According to the project's web site (http://www.jordancoveenergy.com/about_schedule.htm), an application was to be submitted to the Federal Energy Regulatory Commission (FERC) on January 31, 2007, with a decision to be reached by December 31, 2007, and operation to begin December 31, 2010. Such timing appears unrealistic in light of the experience of the SES Project, which began the FERC process in 2003 and was terminated on January 22, 2007, without completion of the Final EIS/EIR. Further, the commenter is mistaken in the terminus of the Pacific Connector Gas Pipeline Project, which is Malin, Oregon, rather than Malin, California. According to the web site for the pipeline project (http://www.pacificconnectorgp.com/), "Subsidiaries of Williams, PG&E Corporation and Fort Chicago Energy Partners LP (Fort Chicago) have agreed to jointly pursue construction of a major new gas transmission pipeline that will increase the supply of natural gas for the West Coast region of the United States."

Neither of the above projects is a fully developed proposal that can be analyzed even as a competing project to the proposed Project.

G207-89

Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

G207-90
Section 3.3.5 has been revised to include updated information the proposed and permitted Baja LNG facilities. The infrastructure associated with the Shell/Sempra Energia Costa Azul facility currently under construction, which will export natural gas to the U.S., was not analyzed further in this document because it is evaluated by the FERC and the CSLC in a Joint EIS/EIR for the North Baja Expansion Project (FERC Docket No. PF05-14-000, SCH# 2006081127). Section 3.3.5 discusses Sempra's proposed expansion of its Costa Azul facility. To date, the expansion has not been permitted; therefore, it would be speculative to evaluate this portion of the project.

It is also more accurate to say that the lead agencies, as indicated in Section 3.3.5, "...determined that a Northern Baja site was not a reasonable alternative as defined under NEPA and the CEQA and that further analysis was therefore inappropriate and unwarranted."

Further, as indicated in Section 3.4.1, No Action Alternative, "It is also likely that other LNG or natural gas-related projects over which the lead agencies have no or partial jurisdiction, e.g., pipelines, would be proposed and pursued should the No Action Alternative be selected (see Section 3.3.5)."

G207-91
Thank you for the information. The amount of natural gas exported from the Baja LNG Terminals will depend on demand and the capacity of the infrastructure. The issue of additional infrastructure is evaluated by the FERC and the CSLC in the Joint EIS/EIR for the North Baja Expansion Project (FERC Docket No. PF05-14-000, SCH# 2006081127) and therefore was not evaluated in this document.

> only use a fraction of the natural gas that one LNG terminal would provide. The peak amounts of natural gas used in Baja California, excluding the power plants that serve the U.S. market, is approximately 250 mmcfd when all the power plants are running. The average natural gas use is considerably less, in the range of 150 to 200 mmcfd. The Shell/Sempra LNG terminal will have a peak capacity of 1,300 mmcfd. The Chevron-Texaco site at the Coronado Islands will have a capacity of 1,000 mmcfd.[65]

The report points out that less than 10 mmcfd of the planned output of 2,300 mmcfd, or less than one percent, could be purchased directly for use in Baja California in 2007.[66] In fact, because no new power plants are proposed or under construction in Baja, there will be limited capacity to use the gas from the Baja LNG projects within Mexico.

> The lack of natural gas infrastructure and demand in Baja, along with the fact that California ratepayers are being asked to bear the burden of $200 million in costs to modify the SDGE natural gas pipeline transmission system, indicates that much of the Baja California LNG supply is expected to serve the California market. The $200 million in pipeline upgrades is needed to reverse flow and allow the importation of large quantities of natural gas from LNG terminal(s) located in Baja California to the U.S market. (Id.)

The Revised DEIR also states that Baja's demand for natural gas is high, because the population there is 15 million people. This is not true. In fact, Baja California has only 3.2 million people, as of 2003 (2.75 in Norte, 0.46 in Sur).[67]

In summary, it is clear that by actions on both sides of the border, California intends to import gas from the Sempra LNG project under construction in Baja Mexico. This project could provide significant natural gas supplies to California, again obviating the need to build an LNG terminal in California. In addition, the Chevron-Texaco LNG project near the Coronado Islands in Baja will have a capacity of 1,000 mmcfd and would likely provide gas supplies to California.

The Revised DEIR states that to import gas from the Baja projects would "merely transfer [environmental] impacts to another sovereign nation." On the contrary, if the Baja projects are already approved and in fact one is under construction, there would be fewer impacts because one less project would have be built and operated. All of the adverse effects from the Cabrillo Port project would be avoided.

Again, the lead agencies dismiss these possibilities because the facilities are not within their jurisdiction. MARAD and the CSLC may not reject alternatives on the basis of jurisdiction, as referenced above.

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[65] / Greenpeace, *Liquid Natural Gas: A roadblock to a clean energy future*, September 7, 2004.
[66] / Id., Table 3.
[67] / Mexican Census via Wikipedia, April 2006.

G207-91 Continued

G207-91
Continued

G207-92

G207-93

G207-94

G207-92
Thank you for the information on the population of Baja California. The figure has been revised in Section 3.3.5.

G207-93
Section 3.3.5 has been updated to clarify the reasons why this alternative was eliminated from further consideration. The transfer of environmental impacts to another sovereign nation is a statement of fact and not a reason why the alternative was eliminated.

As also discussed in Section 4.10.1.3, the CPUC recently reaffirmed that both the State's Integrated Energy Policy Report and Energy Action Plan recognize the need for additional natural gas supplies from LNG terminals on the West Coast: "However, even with strong demand reduction efforts and our goal of 20% renewables for electric generation by 2010, demand for natural gas in California is expected to roughly remain the same, rather than decrease, over the next 10 years. This is because, a substantial portion of the other 80% of electric generation (not met by renewable energy sources) will need natural gas as its fuel source, and natural gas will still be needed for the growing number of residential and business customers of the natural gas utilities."

G207-94
Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the

technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

In sum, with the very slight projected increase in demand for natural gas in California, it is clear that it could be met through any combination of increased conservation and efficiency, renewable sources, other domestic natural gas supplies, and/or importation from Baja Mexico.

G207-95

3.3.6 Regional Offshore Alternatives

There are at least four other proposals to construct an LNG terminal offshore California, as well as proposals in Oregon and Baja. In this section, the Revised DEIR dismisses the feasibility of any alternative offshore proposal, but notably omits the Pt. Conception to LA region. Three other proposed California projects (Crystal, Woodside and Esperanza) are located within this region.

G207-96

3.3.7 Specific California Locations

As mentioned previously, there are two other pending proposals to construct an LNG terminal for California: the Crystal Clearwater project located offshore Oxnard, and the Mitsubishi project proposed for Long Beach. The latter project is well along in the environmental and permitting review process. In addition, there are three new proposals: Woodside's OceanWay project, which would be located offshore Los Angeles, the recently proposed Esperanza Energy project, and Excelerate's Pacific Gateway project. The Woodside project would not require an offshore terminal, which could reduce safety and visual impacts from the proposed project.

G207-97

The Revised DEIR fails to consider any of these projects as alternatives, instead allocating their consideration to the "cumulative impacts" section. However, clearly any of these projects could be approved instead of (rather than in addition to) the proposed project. In fact, evidence exists that only one or two LNG terminals will be constructed on- or offshore California.[68] If the Revised DEIR is correct and California needs to achieve a 7% increase in natural gas demand, and one LNG project would provide 15% of the state's demand, there does not appear to be a need for more than one project.

Incredibly, despite the fact that several alternative LNG projects are proposed, the only alternative analyzed in the Revised DEIR is the Ventura Flats site, which is not only not proposed for an LNG terminal but is significantly worse environmentally and should not even be considered. (See Section 3.4.2.)[69]

G207-98

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[68] / Los Angeles Times, *Offshore Natural Gas Site Sought: Tiny Tidelands Oil & Gas wants to import and 'regasify' liquefied fuel near Long Beach,* April 6, 2006: "'What you're seeing is competition in the approach, design and structure…to satisfy the environmental and safety issues associated with the various designs,' California Energy Commission Chairman Joseph Desmond said. 'In the end, it will be one, maybe two' plants."

[69] / An EIR or EIS must consider alternatives that will *avoid or lessen* environmental impacts. CEQA §21002.1, CEQA Guidelines §§15002(a), 15021(a), 15126.6; NEPA Regulations, §1500.2(e).

G207-95
As stated in Section 1.2.3, "[t]he California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and the CEC is responsible for determining the energy needs of California." The EIS/EIR acknowledges the contribution of energy conservation and renewables to meet California's energy needs in Sections 3.3.1, 3.3.2, and 4.10.1.3. However, the 2005 California Energy Action Plan states explicitly that "California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)."

G207-96
There are no known proposals for offshore terminals in Oregon or Washington, as discussed in Section 3.3.6. Sites from Point Conception to the LA region are considered in Section 3.3.7.

G207-97
The other LNG projects are considered in the cumulative analysis (Section 4.20) because the licensing and permitting processes will be completed independently and they are reasonable and foreseeable. All, some, or none of the proposed LNG facilities could be permitted or licensed and operate simultaneously.

See Section 3.3.7 and Table 3.3-1a for information on the Mitsubishi (Sound Energy Solutions) project proposed in the Port of Long Beach.

The nature and extent of impacts associated with the Clearwater Port Project and the Woodside Natural Gas Project cannot be predicted with any certainty at this time because the necessary environmental analyses have not yet begun.

G207-98
Neither Excelerate's Pacific Gateway project nor the proposed Esperanza Energy project have been developed sufficiently to submit applications under the DWPA, as amended.

Due to the uncertainty of the uncertain length of time required to complete the environmental analyses for the projects for which the application process has either just begun or for which no application yet exists, and the limited information available, the lead agencies do not regard such projects as reasonable alternatives to the proposed Project. Further, as indicated in Section 3.4.1, No Action Alternative, "It is also likely that other LNG or natural gas-related projects over which the lead agencies have no or partial jurisdiction, e.g., pipelines, would be proposed and pursued should the No Action Alternative be selected (see Section 3.3.5)."

As discussed in the previous comment response, these projects are considered in the cumulative impacts analysis (Section 4.20) because the licensing and permitting processes will be completed independently and they are reasonable and foreseeable. All, some, or none of the proposed LNG facilities could be permitted or licensed and operate simultaneously.

G207-98
The "California Coastal Commission Final Report Offshore LNG Terminal Study"(Appendix E) concluded that "the most appropriate siting area for a liquefied natural gas (LNG) terminal off the shoreline of California appears to be in international waters of the southeast part of Ventura Flats" (see Appendix E). For this reason, this alternative was carried forward for further analysis. After a preliminary review, it was determined that the Ventura Flats alternative location would result in more environmental impacts than the proposed location.

3.3.8 Alternative Deepwater Port Concepts

3.3.8.1 Fixed Offshore LNG Terminal Alternatives

The Revised DEIR also dismisses other LNG terminal technologies without analysis, stating that they are infeasible despite the fact that other companies are proposing projects using those very same technologies. For example, Crystal Energy has an application for a project that would utilize an existing oil platform.

G207-99

The Revised DEIR rejects a new fixed platform-based alternative on the grounds that it would be technically infeasible to place such a platform at the depth of the proposed project. (Revised DEIR at p. 3-25.) However, the new fixed platform could be constructed at a different location, where the depth is more appropriate. In fact, the Revised DEIR fails to identify any other floating LNG terminals at this depth.

In addition, this alternative is rejected due to visual effects, even though the proposed project will result in significant visual effects as well. In fact, the FSRU would be much larger than an oil platform (the FSRU would be 1,000 feet wide and 260 feet tall, whereas an oil platform is 60 feet wide and 250 feet tall).

The alternative of using an existing platform-based terminal alternative is also rejected on the grounds that it would provide insufficient storage capacity. (Revised DEIR at p. 3-24.) However, the attached letter from Crystal Energy points out that ship deliveries can be scheduled to provide a continuous supply of LNG, and the natural gas can be stored on the LNG tankers or onshore to ensure adequate capacity and supply.[70]

G207-100

Finally, this alternative is rejected due to navigational hazards; again, the proposed FSRU will pose similar hazards.

3.3.8.2 Gravity-Based Structure

Similarly, the Revised DEIR rejects a gravity-based structure based upon the depth of the water at the site of the proposed project, even though an alternative LNG terminal could be constructed in shallower water.

G207-101

3.3.8.3 Floating Offshore LNG Terminal

The Revised DEIR rejects the alternative of a floating LNG terminal as infeasible, even though there is a competing proposal to construct such a project offshore Los Angeles. A floating terminal appears to reduce certain environmental effects, including visual and

G207-102

[70] / Harris, Jeff, Ellison, Schneider & Harris LLP, *Comments of Crystal Energy, LLC on the Draft EIS/EIR for the Port of Long Beach LNG Import Project,* 12/8/05. See also *Comments of Clearwater Port, LLC on the Revised Draft Environmental Impact Report for the Cabrillo Port Liquefied Natural Gas Deepwater Port,* May 9, 2006.

G207-99
Section 3.3.8 provides information on other LNG terminal technologies, including the Clearwater Port project and its status in the regulatory process.

G207-100
Section 3.3.8.1 has been revised to clarify the reasons why these alternatives were eliminated from further analysis in the document. It should be noted that the EDC has historically opposed oil and gas development that would require the installation of additional platforms offshore of California.

G207-101
This alternative was eliminated from further consideration for several reasons. As discussed in Section 3.3.8.2, the reason included "the technical infeasibility of installing it at the location of the proposed Project or any other location with similar attributes, e.g., distance from shore, and because a location closer to shore would pose greater visual effects, public health and safety, and potential marine traffic issues than the proposed Project."

As discussed previously, both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that

discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

G207-102
Section 3.3.8.3 has been revised. See also the response to Comment G207-4. The floating offshore LNG terminal was not rejected because there is a potential proposal to construct one offshore of Los Angeles. The potential licensing of the Cabrillo Port Project would not preclude the licensing of any other LNG facility offshore of Southern California. The single-point mooring direct regasification system was eliminated from consideration because it did not meet the purpose and need of the proposed Project, i.e, it could not supply the volume of natural gas nor did it provide storage. The multiple-point mooring direct gasification system was eliminated from further consideration because although it could supply a comparable volume of gas, it would not have storage to ensure a continuous supply of natural gas to Southern California in case of adverse weather events, which would not have similar effects on the proposed Project.

safety effects. One of the reasons this alternative is rejected is because poor weather could prevent the LNG tankers from berthing; however, the same restriction applies to the proposed project. In poor weather conditions, the LNG tankers may not be able to berth next to the FSRU. Although the FSRU does provide some storage capacity, the decision-makers should have the opportunity to weigh the advantages of the storage capacity against the environmental advantages of another technology such as a floating terminal.

In fact, other LNG companies do believe that this type of facility is feasible, both for the nation and the state. Excelerate Energy has constructed the Gulf Gateway project in the Gulf of Mexico. This project has a baseload capacity of 500 mmcfd with a peak capacity of 690 mmcfd of gas. Construction was completed in February, 2005, and the first shipment of LNG was received in March 2005.[71]

Woodside's OceanWay project would employ similar "Energy Bridge" technology and would be located approximately 20 miles offshore Los Angeles. This project is projected to supply between 700 and 1400 mmcfd, comparable to the Cabrillo Port project. Based upon these projections, it is improper to reject this type of facility on the grounds that the supply would not be sufficient.[72]

Another proposal has been presented by Esperanza Energy LLC, formed in March 2006 by Tidelands Oil & Gas Corporation from San Antonio, Texas. This proposal would involve construction of a deepwater port offshore California, near Long Beach.[73] The Esperanza project would use TORP Technology's HiLoad LNG Regas technology, which involves a floating LNG transfer and regasification unit that docks directly onto a LNG

[71] / Excelerate Energy, *Gulf Gateway Energy Bridge Deepwater Port,* www.excelerateenergy.com.

[72] / Woodside Natural Gas press release, *Woodside Selects Site for Oceanway Secure Energy Proposal,* March 15, 2006; Associated Press, *Australian firm proposes LNG terminal in ocean off Malibu,* March 15, 2006; Los Angeles Times, *Natural Gas Terminal Off Coast is Proposed: A project about 22 miles south of Malibu is one of several proposed to meet state energy demand,* 3/15/06; Malibu Times, *Malibu News Flash: Malibu's coast gets 2nd LNG terminal proposal,* 3/17/06; World Gas Intelligence, *Woodside, BHP In Race To California,* 3/22/06; EnergyReview.net, *Woodside selects site for US LNG transfers but regulator finds BHPB plan risky,* March 16, 2006; Bloomberg, *Woodside Plans to Skirt Californian LNG Concern With New Ships,* January 19, 2006; Los Angeles Times, *Firm Says Process for Shipping Gas is Safer,* January 17, 2006; Sydney Morning Herald, *Woodside brags about prospects,* November 17, 2005.

[73] / Oil & Gas Journal, *Esperanza studies LNG terminal off California,* April 6, 2006; PRNewswire, *Esperanza Energy Evaluating Southern California Offshore LNG Receiving Terminal,* April 4, 2006; LA Times, *Offshore Natural Gas Site Sought: Tiny Tidelands Oil & Gas wants to import and 'regasify' liquefied fuel near Long Beach,* April 6, 2006; CalTrade Report, *Another Hat in the LNG Terminal Ring: Texas energy company eyes Southern California for offshore gas project,* April 20, 2006.

G207-102 Continued

G207-102 Continued

G207-103

Both NEPA and the CEQA require the consideration of alternatives to a proposed project. A lead agency's lack of jurisdiction over a potential alternative is one factor that it may consider in determining if a potential alternative is feasible, reasonable, and merits detailed study in an EIS/EIR. Whether a potential alternative is purely hypothetical or speculative, or whether the potential alternative can be accomplished in a successful manner in a reasonable period of time are additional factors the lead agency may consider in assessing the feasibility and reasonability of the potential alternative.

From a NEPA perspective, while a Federal agency must analyze "a range of reasonable alternatives" (as opposed to any and all possible alternatives), and may be required to analyze an alternative that is outside the capability of an applicant and that is outside the jurisdiction of the agency, the threshold question in determining whether to analyze any alternative is whether that alternative would be a "reasonable" alternative. Reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a).

To provide for an effective "hard look" at the alternatives the agency must limit the range to those alternatives that will best serve the environmental review process, and not needlessly examine and discuss in depth remote or speculative alternatives that that discussion does not facilitate a better decision making process. As stated in 40 CFR 1502.14(a), the EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Section 15126.6(a) of the State CEQA Guidelines states, in part, "[t]he Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "[t]he law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 in the State CEQA Guidelines states that "[t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a

limitation as any economic, environmental, social, or technological factor."

Chapter 3 discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the EIS/EIR. The range of alternatives studied in detail is reasonable and conforms to NEPA and the CEQA requirements.

G207-104
See response to Comment G207-97.

carrier.[74] According to Esperanza, this technology enhances LNG transfer reliability and safety, and eliminates the need for extensive above-ground storage tanks or large marine structures required for berthing and processing.

Finally, Excelerate Energy, the Texas company that built the Gulf Gateway LNG project in the Gulf of Mexico, is considering a proposal offshore California.[75]

4.0 ENVIRONMENTAL ANALYSIS

4.1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

As noted above, the Revised DEIR is inadequate for failing to evaluate the impacts from the project's maximum capacity of 1.5 billion cubic feet per day. This increased capacity will result in significantly greater impacts to air quality, marine traffic, water quality, public safety, noise and marine wildlife.

4.1.4 Direct and Indirect Impact Analysis

Under both NEPA and CEQA, a lead agency must consider and evaluate the indirect, as well as the direct, effects of a proposed project. These effects must be disclosed to the public and decision-makers, even if they occur outside the scope of the proposed action or the jurisdiction of the lead agencies.[76]

In this case, the Revised DEIR only addresses impacts from the FSRU and activities in the vicinity of the FSRU, and delivery of the natural gas to and onshore. However, this project will also require the exploration, extraction and production of natural gas at the source (according to the Revised DEIR, in Australia or Indonesia), processing and liquefaction of the gas, shipment of the LNG in tankers over 9,000 miles to the United States, regasification at the FSRU, delivery to the onshore gas pipeline system, and ultimate consumption by end users. These activities will cause significant indirect impacts at the site of the extraction and production (as discussed in our December 2004 comments on the Draft EIS/EIR), as well as significant impacts to air and water quality

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[74] / PRNewswire, *Esperanza Energy to Utilize TORP's Environmentally Friendly Technology for Potential Southern California Offshore LNG Receiving Terminal,* May 3, 2006.

[75] / Los Angeles Times, *Offshore Natural Gas Site Sought: Tiny Tidelands Oil & Gas wants to import and 'regasify' liquefied fuel near Long Beach*, supra.

[76] / See 40 C.F.R. §1508.8; Border Power Plant Working Group v. Dept. of Energy, 260 F. Supp. 2d 997 (S.D. CA. 2003) (DOE required to consider air emissions from construction of power plant in Mexico in the context of agency review of application to construct and operate transmission lines within the United States); Mid States Coalition for Progress, et al. v. Surface Transp. Board, 345 F.3d 520 (8th Cir. 2003) (Board was required to consider indirect "reasonably foreseeable" impacts to air quality from construction of new railroad lines, which would increase the availability of coal and induce increased burning and consumption of coal fuel); CEQA Guidelines §15126.2(a); Bakersfield Citizens for Local Control v. City of Bakersfield, 124 Cal. App. 4th 1184 (2004).

G207-104 Continued

G207-104 Continued

G207-105

G207-105
Section 1.0, "Introduction," has been updated to more clearly specify the throughput figures used in the environmental analysis. As stated, "Under normal operating conditions, the annual average throughput would be 800 million cubic feet per day; however, the Applicant has calculated that maximum operating scenarios would allow deliveries of up to 1.2 billion cubic feet per day, or the gas equivalent 1.5 billion cubic feet per day on an hourly basis for a maximum of six hours. These operating conditions would only be in effect if SoCalGas were to offer the Applicant the opportunity to provide additional gas in cases of supply interruption elsewhere in the SoCalGas system or extremely high power demand, for example, during hot summer days." In addition, applicable sections of the document have been updated similarly to clarify the throughput figures used in the analysis, including Sections 4.6, 4.7, 4.14, and 4.18.

G207-106

G207-106
We respectfully disagree. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, requires Federal agencies to consider the potential environmental effects of major Federal actions that could significantly affect the global commons outside the jurisdiction of any nation. Executive Order 12114 is not applicable to the extraction and development of natural gas in foreign countries.

An evaluation of the Project's environmental effects abroad must also be viewed within the context of section 15040 of the State CEQA Guidelines, which specifically defines and correspondingly limits the authority provided to State and local agencies under the CEQA.

The Applicant has stated that the source of the natural gas for this Project would be either Australia, Malaysia, or Indonesia. As these countries are sovereign nations, the Applicant would be required to comply with those countries' applicable environmental laws and regulations pertaining to the extraction and development of natural gas fields as well as those pertaining to the liquefaction and transfer of LNG to LNG carriers. Consideration of the Applicant's compliance with a foreign nation's applicable laws and regulations is beyond the scope of this EIS/EIR.

The Applicant has indicated that the Scarborough natural gas field in the state of Western Australia could be a potential source of

natural gas for the Project. In May 2005, the Honourable Ian Macfarlane, the Australian Federal Minister for Industry, Tourism and Resources, stated, "Development of the Scarborough Field and related support facilities must be carried out in accordance with applicable laws and regulations of both the Australian Government (federal) and the State Government in Western Australia. Any activities will be subject to assessment and approvals under the applicable environmental legislative regimes. These include, among others, the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999, governing matters of national environmental significance, and, under State legislation, the Western Australian Environmental Protection Act 1986. The objectives of the Commonwealth's environmental regulatory regimes are to provide for the protection of the environment and ensure that any petroleum activity is carried out in a way that is consistent with the principles of ecologically sustainable development." (Appendix L contains a copy of this letter.)

Section 1.3 has been revised to include information on Indonesian and Malaysian environmental requirements that would regulate impacts related to producing and exporting natural gas. All three countries have existing LNG liquefaction facilities.

Section 4.6.1.4 discusses greenhouse gas emissions for the proposed Project.

and marine wildlife during shipment overseas. In addition, production, processing, transportation, and combustion of the gas will result in significant climate change effects.

The Revised DEIR must be revised again to address these indirect effects.

4.2 PUBLIC SAFETY: HAZARDS AND RISK ANALYSIS

The Revised DEIR Understates the Hazards and Risks from an Offshore Release of LNG

Although the Revised DEIR has made some considerable improvements in its consequence modeling analysis since the 2004 Draft EIS/EIR, there are still significant deficiencies with the consequence modeling methodology and analysis of the safety impacts on human life and property. Most importantly, although the Revised DEIR now admits significantly larger hazard areas that extend as far as 7.3 miles from the FSRU and would encompass the entire shipping lanes, it fails to adjust the safety or exclusion zones to protect human life and property and mitigate these newly disclosed impacts.

To follow up on his prior review and comments on the 2004 DEIS/EIR, the Revised DEIR was reviewed and analyzed by renowned LNG dispersion modeling expert Dr. Tom Spicer. Dr. Spicer, of the University of Arkansas, is one of the developers of the dispersion model used in the Federal Energy Regulatory Commission's ("FERC") LNG consequence modeling for spills on water, the only methodology that has been publicly reviewed for this application. His analysis is attached hereto. These comments are referenced throughout this letter, and Dr. Spicer's report in its entirety is incorporated herein by reference.

In his report, Dr. Spicer reveals that there are still critical flaws in the modeling methodology that has served to underestimate the hazards posed by credible LNG spill scenarios.[77] The following comments highlight Dr. Spicer's findings.

> *The Vapor Cloud Hazard Analysis Is Still Based On a Computer Model That Has Not Been Verified or Validated For This Application.*

In 2004 Dr. Spicer concluded that the Draft EIS/EIR **severely underestimated** the consequences of an LNG accident by as much as **a factor of 4** by using the wrong computer model. As a result, the 2004 Draft EIS/EIR estimated that a worst case scenario involving all 3 LNG storage tanks on the FSRU would result in serious injuries at a maximum distance of just 1.6 miles. Coincidentally, this distance was less than BHP Billiton's proposed "Area To Be Avoided" of 2.3 miles, which is also the same distance from the FSRU to the shipping lanes (2.3 miles) and the proposed exclusion zone (500

[77]/ He also reports that BHP Billiton's own safety consultant, Dr. Koopman, inappropriately participated on the External Peer Review Panel for the Sandia National Laboratory Report that was used as guidance to estimate the LNG spill consequences used in the Revised DEIR, impairing the objectivity of the resulting safety analysis. Spicer at 2.

G207-106 Continued
G207-107
G207-108
G207-109

G207-106 Continued

G207-107
The lead agencies directed preparation of the Independent Risk Assessment (IRA), and the U.S. Department of Energy's Sandia National Laboratories independently reviewed it, as discussed in Section 4.2 and Appendix C. Section 4.2.7.6 and the IRA (Appendix C1) discuss the models and assumptions used and the verification process. Sandia National Laboratories (Appendix C2) concluded that the models used were appropriate and produced valid results. Section 4.2.1 provides an overview of the modeling results and the potential consequences of an incident.

Sections 2.2.4, 4.3.1.4, and 4.3.4 address the size of the safety zone, how it would be established, and the potential impacts on marine traffic. The FSRU would be able to rotate 360° around the mooring turret. The safety zone would extend 500 m from the circle formed by the FSRU's stern, the outer edge of the facility, rotating around the mooring turret. See Figure 4.3-4 for an illustration of the potential safety zone and area to be avoided. The safety zone could not be made any larger because its size is governed by international law. Section 4.2.7.6 contains information on the potential impacts of potential incidents at the FSRU and mitigation measures. Impact MT-4 in Section 4.3.4 contains information on the impacts that an incident at the FSRU could have on marine traffic and the mitigation measures that would reduce potential impacts.

G207-108
The Project is regulated by the USCG and MARAD under the authority of the Deepwater Port Act. FERC's regulations are prescriptive and standardized to address the general siting of onshore LNG terminals. In contrast, due to various different designs of deepwater ports, the USCG conducts site-specific independent risk and consequence analyses using the most recent guidance and modeling techniques. The guidance used for Cabrillo Port is Sandia National Laboratories' "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water." This report recommends a framework for analyses of large LNG spills onto water. It was prepared for the U.S. Department of Energy (DOE), and an external peer review panel evaluated the analyses, conclusions, and recommendations presented. See also responses to Dr. Spicer's 2006 Comment Letter P464.

As discussed in Section 4.2.7.6, the IRA determined that the

greatest distance from the FSRU within which public impacts would occur is 6.3 NM (7.3 miles or 11.7 km), which would result from the intentional breach of two Moss tanks. This hazard distance encompasses the TSS shipping lanes, but extends no closer than 5.71 NM from the nearest mainland landfall. The hazard to the shipping lane would occur about 30 minutes after the initiating event, which could allow for notification and response, such as moving away from the accident or sheltering in place. The exposure time within the shipping lane would be for about another 30 minutes until the vapor cloud dispersion falls below the lower flammability limit. An average of three vessels would be exposed to this vapor cloud hazard based on marine traffic frequency estimates.

This scenario may overestimate the hazard because even though the release of the two full tanks is assumed, this may not occur. In addition, Sandia's model showed a significantly smaller dispersion distance (about 7,000 m instead of roughly 11,000 m). Further, it is highly likely that if the LNG were released, it would result in a pool fire instead of vapor cloud dispersion or a vapor cloud (flash) fire. The robust structure of the Moss tanks and double-hulled FSRU, and the nature of the events that could produce this scenario (such as a deliberate attack with various types of weapons or aircraft) make it likely that an ignition source would be present. Because an exceptionally large amount of force is needed to damage an LNG tank, and because the amount of energy required to breach containment is so large, in almost all cases a fire would result from this type of terrorist attack.

G207-109
Dr. Koopman was the principal investigator for the Burro tests while employed by the U.S. Department of Energy's Lawrence Livermore National Laboratory. By definition, an external peer reviewer is someone who is not employed by the organization whose work is reviewed, and Dr. Koopman's role as a peer reviewer of the Sandia Guidance document was completed before the U.S. Department of Energy's Sandia National Laboratories was retained by the USCG. The USCG determined that his participation as a member of the External Peer Review Panel for the Sandia 2004 report did not pose a conflict with the review of the IRA in 2005 by the U.S. Department of Energy's Sandia National Laboratories.

Dr. Koopman did not work on the IRA (Appendix C), or the review of the IRA associated with the proposed Project, which was conducted by the U.S. Department of Energy's Sandia National Laboratories (see Appendix C2).

meters). Now, the Revised DEIR reports that a vapor cloud fire caused from an LNG release from just 2 out of the 3 LNG storage tanks would result in a fire that extends 7.3 miles long and could encompass the entire area of the shipping lanes that serve the largest ports on the West Coast.

Despite the increased consequence hazard distances, the Revised DEIR still uses an inappropriate computer model that has not been peer reviewed, verified or validated, such as the FERC model, for the purpose of predicting the dispersion of LNG vapor.[78] Instead of using an appropriate model that was intended to calculate denser-than-air LNG vapor, the Revised DEIR uses the Fire Dynamic Simulator, a model used to simulate fires from a burning building.[79] There is no explanation in the Revised DEIR as to why the consequence model approved and verified by FERC specifically for determining thermal radiation and vapor dispersion hazards for LNG spills on water was not used or even referenced.[80] This important flaw results in several problems with the hazard predictions that serve to underestimate the true consequences of the accident scenarios identified in the Revised DEIR. (Revised DEIR, p. 4.2-2.) This deficiency undermines the CEQA and NEPA process by failing to disclose the true safety impacts from the Cabrillo Port LNG Project – a flaw that will impair the ability of the permitting agencies to adequately review the impacts of this project on California's coastal resources.

The Revised DEIR Underestimates the Hazard Distances For Each Spill Scenario

According to Dr. Spicer, the significance of using the wrong model in the Revised DEIR impacts the calculated hazard distances for all three accident scenarios in the Revised DEIR: 1) Marine collision releasing one-half a tank through a large breach; 2) the intentional release of two LNG tanks; and 3) escalation causing the release of two LNG tanks. For each of these scenarios he concludes the Revised DEIR predictions are flawed and underestimated because:

- The **dispersion hazard distances will be significantly longer** if estimated on the basis of 50% of the Lower Flammability Level for LNG vapor, as advised in

[78]/ Spicer at 3-4, "There are models available which take into account the appropriate physical principles that govern the dispersion of denser-than-air gases such as LNG vapor and are referenced in 49 CFR 193 and NFPA 59A. Such modeling questions have been recently revisited by FERC. Under contract number FERC 04C40196, ABS Consulting summarized methods for determining thermal radiation and vapor dispersion hazards for LNG spills on water. The pertinent reports from this work are "Consequence Assessment Methods for Incidents Involving Releases from Liquefied Natural Gas Carriers" (dated 13 May 2004) and "Notice of Availability of Detailed Computations for the Consequence Assessment Methods for Incidents Involving Releases from Liquefied Natural Gas Carriers" (dated 29 June 2004) as part of FERC Docket No. AD-04-6-0000."

[79]/ Id.

[80]/ Spicer at 3.

G207-109 Continued

G207-109 Continued

G207-110

G207-110
The lead agencies directed preparation of the Independent Risk Assessment (IRA), and the U.S. Department of Energy's Sandia National Laboratories independently reviewed it, as discussed in Section 4.2 and Appendix C. Section 4.2.7.6 and the IRA (Appendix C1) discuss the models and assumptions used and the verification process. Sandia National Laboratories (Appendix C2) concluded that the models used were appropriate and produced valid results.

The Project is regulated by the USCG and MARAD under the authority of the Deepwater Port Act. FERC's regulations are prescriptive and standardized to address the general siting of onshore LNG terminals. In contrast, due to various different designs of deepwater ports, the USCG conducts site-specific independent risk and consequence analyses using the most recent guidance and modeling techniques. The guidance used for Cabrillo Port is Sandia National Laboratories' Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water. This report recommends a framework for analyses of large LNG spills onto water. It was prepared for the U.S. Department of Energy (DOE), and an external peer review panel evaluated the analyses, conclusions, and recommendations presented.

G207-111

Appendix C to the IRA (Appendix C1) contains information on the selection of models for the LNG hazard scenario consequence modeling. Figure 1 shows the theoretical physical and thermal processes involved in LNG spill. Appendix C to the IRA states that the Dense Gas Dispersion Model (DEGADIS) "was specifically developed for heavier-than-air gases or aerosols. Natural gas, which LNG becomes after evaporation, is lighter than atmospheric air and thus does not fall within this class...Based on all the processes involved in the potential FSRU LNG spill scenarios, the decision was made to use a computational fluid dynamics (CFD) modeling tool to simulate the dispersion process. This approach is consistent with the recommendations found in guidance developed by Sandia National Laboratories...The model used for liquid and gas dispersion is the Fire Dynamics Simulator (FDS) developed by the National Institute of Standards and Technology (NIST). FDS is a CFD code that solves the full set of governing equations for fluid motion. Though developed primarily for fire simulations, it has been successfully used for a broader range of fluid dynamic problems [and] can predict the dispersion of liquids and gases with good accuracy."

The Sandia review of the IRA (Appendix C2) concluded that "[t]he final results for both fire and dispersion hazard distances should provide conservative estimates of expected hazard distances."

G207-111
The criteria given in 49 CFR 193 are based on the use of Gaussian models, which have inherent limitations especially when used on lighter than air gases such as methane. The specified use of half LFL is related to the Reynolds averaging time as it affects mixing. The computational fluid dynamics model used in the IRA does not have these inherent limitations because it has a different numeric basis and produces more accurate results that include uneven mixing. Therefore, using half LFL would be overly conservative and is unnecessary. Neither the above regulation nor the criteria it specifies are applicable to the proposed Project, which is: 1) federally regulated by MARAD and the USCG and not by FERC, and 2) an offshore rather than an onshore facility.

The Project is regulated by the USCG and MARAD under the authority of the Deepwater Port Act. FERC's regulations are prescriptive and standardized to address the general siting of onshore LNG terminals. In contrast, due to various different designs of deepwater ports, the USCG conducts site-specific independent risk and consequence analyses using the most recent guidance and modeling techniques. The guidance used for Cabrillo Port is Sandia National Laboratories' "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water." This report recommends a framework for analyses of large LNG spills onto water. It was prepared for the U.S. Department of Energy (DOE), and an external peer review panel evaluated the analyses, conclusions, and recommendations presented. Also, the FERC reports cited by the commenter predate the Sandia report. See also the response on page 32 of this letter.

the FERC methodology, in place of the Revised DEIR basis of using LFL for pure methane.[81]

- The **pool fire hazard distance will be significantly longer** if estimated using FERC's LNG pool spreading model in place of the Revised DEIR model.[82]

- **Thermal radiation hazard distances will be significantly longer** if estimated using the criterion of 1.6 kW/m2 in place of that used in the Revised DEIR.[83]

The Revised DEIR should be revised to include the correct calculations as described by Dr. Spicer.

The Revised DEIR Fails To Model the Worst Case Scenario From a Terrorist Attack Involving All Three LNG Storage Tanks on the FSRU

Additionally, and in contrast to the 2004 DEIS/EIR, the Revised DEIR fails to calculate a true worst case scenario, such as a terrorist attack, that would release the contents of all three LNG storage tanks on the FSRU. Though the Revised DEIR admits this scenario is unlikely, it does not state that it is impossible. (Revised DEIR at 4.2-35.) The agencies made a commitment to the public during scoping that the consequences of a worst case scenario would be disclosed and they kept that commitment in the 2004 Draft EIS/EIR. Now, the Revised DEIR expands the hazard distances for each scenario but inexplicably failed to disclose the consequences for a scenario it previously modeled in 2004. This change in the analysis results in a misleading comparison of oranges to apples. At a minimum, the Revised DEIR should apply its improved computer modeling to predict the three tank accident scenario modeled in 2004. This information should not be withheld from the public.

The Revised DEIR Fails to Analyze Impacts to The Shipping Lanes From a Vapor Cloud Fire that will Exceed the Applicant Proposed "Area To Be Avoided," the "Exclusion Zone," and Encompass the Shipping Lanes

Consistent with Dr. Spicer's comments on the 2004 DEIS/EIR, the Revised DEIR admits that a credible two tank LNG release will encompass the shipping lanes and exceed the 2.3 mile Area To Be Avoided (ATBA) and the 500 meter Exclusion Zone. While the FSRU is located several miles offshore, it is located only 2.3 miles from the edge of the southbound shipping lane. Thus, even using the Revised DEIR's computer model that underestimates the hazard zones, it still admits that the hazard zones run well into the shipping lanes, posing impacts that were not analyzed in the 2004 DEIS/EIR and are still not analyzed in the Revised DEIR. Yet, the Revised DEIR fails to analyze the impacts to the shipping lanes or propose any mitigation measures. (Revised DEIR p. 4.2-40 and 4.2-

[81]/ Spicer at 2.
[82]/ Id.
[83]/ Spicer at 2-3.

G207-111 Continued

G207-111 Continued

G207-112

G207-112
Different criteria are available to determine potential thermal radiation damage levels. The agencies selected levels from Sandia National Laboratories' Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water, SAND2004-6258, December 28, 2004. This guidance is available at http://www.fe.doe.gov/programs/oilgas/storage/lng/sandia_lng_1204.pdf.

G207-113

G207-113
NEPA does not require "worst-case analysis" but does require the agency to prepare a summary of existing relevant and credible scientific evidence and an evaluation of adverse impacts based on generally accepted scientific approaches or research methods. However, contrary to the implication of the comment, the Independent Risk Assessment (IRA) (Appendix C1) defines and evaluates representative worst credible cases (scenarios of events that would lead to the most serious potential impacts on public safety). These included accidents that would affect one, two, or all three tanks of the FSRU.

As shown in Tables 4.2-1, 4.2-2, 4.2-7, and 4.2-8, the release of the contents of all three tanks (the entire contents of the FSRU and an attending LNG carrier) is addressed in the escalation scenario associated with a large intentional event. Section 4.2.7.6 contains additional information on how intentional events are addressed. Although the 2006 U.S. Department of Energy's Sandia National Laboratories third-party technical review of the 2004 IRA found that the three-tank simultaneous release (a massive LNG release in a short time period) was not credible, Sandia recommended the consideration of a cascading (escalation) three-tank scenario.

G207-114

G207-114
Sections 2.2.4, 4.3.1.4, and 4.3.4 address the size of the safety zone and Area to be Avoided (ATBA) around the FSRU, how they are established, and their potential impacts on marine traffic. According to Section 4.3.1.4, "the actual size of the ATBA would be determined through the advice and consent of the Office of Vessel Traffic Management of the USCG...The ATBA could not intrude on an established shipping lane available to vessel operators (public, commercial, and recreational vessels)." The safety zone could not be made larger because its size is governed by international law, to which the U.S. is a signatory.

As discussed in Section 4.2.7.6, the IRA determined that the greatest distance from the FSRU within which public impacts would occur is 6.3 NM (7.3 miles or 11.7 km), which would result from the intentional breach of two Moss tanks. This hazard distance encompasses the shipping lanes but extends no closer than 5.71 NM from the nearest mainland landfall.

The hazard to the shipping lane would occur about 30 minutes after the initiating event, which could allow for notification and response, such as moving away from the accident or sheltering in place and implementing fire response measures. The exposure time within the shipping lane would be for about another 30 minutes until the vapor cloud dispersion falls below the lower flammability limit. An average of three vessels would be exposed to this vapor cloud hazard based on marine traffic frequency estimates.

This scenario may overestimate the hazard, because even though the release of the two full tanks is assumed, this may not occur. In addition, Sandia's model showed a significantly smaller dispersion distance (about 7,000 m instead of roughly 11,000 m). Further, it is highly likely that if the LNG were released, it would result in a pool fire instead of vapor cloud dispersion or a vapor cloud (flash) fire. The robust structure of the Moss tanks and double-hulled FSRU, and the nature of the events that could produce this scenario (such as a deliberate attack with various types of weapons or aircraft) make it very likely that an ignition source would be present. Because an exceptionally large amount of force is needed to damage an LNG tank, and because the amount of energy required to breach containment is so large, in almost all cases a fire would result from this type of terrorist attack.

However, a conservative approach was taken and accordingly Impact MT-4 in Section 4.3.4 contains information on the impacts that an incident at the FSRU could have on marine traffic in the shipping lanes and, contrary to the comment, proposes the mitigation that would reduce potential impacts.

50-55.) Additionally, although the Revised DEIR acknowledges that average shipping traffic would expose at least three vessels to a vapor cloud fire under the worst case credible scenario, it states only that "vessels could be notified during this time." (Revised DEIR at 4.2-20.) It declines to disclose what action the vessels would be advised to take to avoid a fire that extends 7.3 miles across the shipping lanes and the feasibility of maneuvering several supertankers quickly and effectively to safety.[84]

Impacts Have Not Been Mitigated To the Maximum Extent Feasible

The most troubling aspect of the Revised DEIR is that while it acknowledges the hazard areas are substantially increased and overlap the shipping lanes, it fails to extend either the ATBA or the Exclusion Zone to protect the public from these increased safety impacts. For example, Impact PS-2 deals with the release of LNG from a High Energy Marine Attack or Intentional Attack with hazards that extend well beyond the ATBA and the Exclusions Zone identified as a mitigation measure in AM PS-1d. For onshore facilities, 49 CFR 193 requires the area of the exclusion zone be based on calculated vapor cloud hazard distance. It is nonsensical and irresponsible to the public's safety for the Revised DEIR to fail to correlate the increased hazards from the accident scenarios to the size of the ATBA or Exclusion zone.

Under CEQA and NEPA, these safety impacts must be mitigated to the maximum extent feasible. Dr. Spicer discloses that a feasible mitigation measure that would mitigate these hazards is to extend the ATBA or the Exclusion Zone to encompass the maximum hazard zone.[85] Another feasible mitigation measure is to move the FSRU so that it is at least 7.3 miles from the edge of the shipping lanes. Neither of these mitigation measures were identified or considered in the Revised DEIR.

The Revised DEIR Fails to Analyze the Potential Risks of Onshore Leaks due to Chemical Composition of the Natural Gas from the Proposed Project

Between 2003 and 2005, Washington Gas, Inc., a natural gas distributor in the State of Maryland, experienced an unusually high number of dangerous gas leaks in certain areas of its suburban gas distribution network. Washington Gas contracted scientific analysis to determine the cause of the leaks. In a detailed report, the analysts concluded that the chemical composition of natural gas delivered by Washington Gas from the Cove Point LNG terminal to consumers in the high-leak areas contributed to degradation of seal quality in the gas pipeline network and the unusual number of gas leaks discovered among Washington Gas customers.[86]

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[84]/ Spicer at 5.
[85]/ Spicer at 6.
[86]/ ENVIRON International Corporation. *Investigation of the Causes of Leaks in Natural Gas Pipeline Compression Couplings* Groton, MA. Prepared for Washington Gas Company, Springfield, VA. July 1, 2005.

G207-114 Continued

G207-114 Continued

G207-115

G207-116

G207-117

G207-115
As previously stated, Sections 2.2.4, 4.3.1.4, and 4.3.4 address the size of the safety zone, how it would be established, and the potential impacts on marine traffic. The FSRU would be able to rotate 360° around the mooring turret. The safety zone would extend 500 m from the circle formed by the FSRU's stern, the outer edge of the facility, rotating around the mooring turret. See Figure 4.3-4 for an illustration of the potential safety zone and Area to be Avoided. The safety zone could not be made any larger because its size is governed by international law as indicated in the response to the comment on the bottom of page 33 of this letter.

G207-116
NEPA does not require mitigation "to the maximum extent feasible" (CEQ section 1508.20). NEPA requires the identification of feasible mitigation, which for offshore public safety and marine traffic impacts is identified in Sections 4.2.7.6 and 4.3.4.

See also the previous response. With respect to relocating the FSRU as mitigation, insufficient technical information is available to: (1) establish that such relocation is feasible within the meaning of section 15364 of the State CEQA Guidelines; or (2) determine pursuant to the requirements of section 15126.4(a)(1)(D) of the State CEQA Guidelines, whether such mitigation "...would cause one or more significant effects in addition to those that would be caused by the project as proposed..."

G207-117
Section 4.2.8.1 under "Historical Natural Gas Pipeline Incident Data" contains information on this topic. As discussed, a "Presiding Administrative Law Judge ruled on April 11, 2006, that there was no probative evidence presented by Washington Gas & Light that would indicate a substantial risk to seal leakage (or seal degradation) or to end-use appliances from regasified LNG."

G207-117 Continued

G207-117
Continued

Several findings from the Washington Gas report pertain directly to the environmental impact review for the proposed Cabrillo Port facility. The Revised DEIR fails to include these considerations, despite the grave implications for the safety of potential consumers of BHP Billiton's vaporized LNG.

Among the important findings, the report states:

- *The process of natural gas liquefaction and re-vaporization results in a lower C5+[gaseous hydrocarbons with molecular weight equal to or greater than pentane] content (mostly pentanes and hexanes) in the re-vaporized LNG than that of the pipeline [domestic] gas. The gases used in our experiments demonstrated this difference: concentrations of C5+ hydrocarbons were 1053 ppm in the Shenandoah pipeline gas versus 105 ppm in the Cove Point gas.*

- *The elastomer in the seals can adsorb and desorb pentane, hexane, and other higher hydrocarbons, resulting in dimensional changes on the order of a few percent to a few tens of percent.... In fact, hexane swell tests are a standard way of characterizing synthetic rubbers. Likewise a change from pipeline to LNG gases can result in desorbing of pentane/hexane and* a *concomitant shrinking of the elastomer seal, leading to a reduction in sealing force.*

- *...The change to [Cove Point LNG] gas that has a lower concentration of pentane and higher molecular-weight (C5+) compounds, caused a slight shrinkage in some seals due to de-sorption of previously adsorbed C5+ compounds.* [87]

According to Washington Gas officials, the low C5+ compound concentrations in the Cove Point LNG was "a key contributing factor" in the deterioration and leakage of more than 1,400 gas seals, requiring a $144 million project to replace gas lines and equipment.[88] Illustrating the danger of the leaks, a high energy explosion that razed a four bedroom Maryland home (fortunately, uninhabited) was implicated in the shrunken-seal leaks.[89]

BHP Billiton aims to supply a very large proportion of the gas consumers in Southern California and/or surrounding states with regasified LNG. However, the Revised DEIR does not acknowledge or consider the potential impact the BHP Billiton product may have on the physical gas distribution infrastructure of these areas, or the associated threat to public health and safety. The widespread, expensive and dangerous damage caused by vaporized LNG in the Washington Gas distribution network *requires* that environmental

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[87]/ Id.
[88]/ Baltimore Sun, *Officials look for cause at Cove Point for leaks in Pr. George's houses; Dominion blames equipment.* July 8, 2005.
[89]/ Id.

impact analysis for Cabrillo Port include such consideration. At a minimum, this consideration should include: the predicted concentrations of pentane and hexane in the gas produced at Cabrillo Port (for LNG originating in both Australia and Indonesia), a comparison of these concentrations with existing infrastructure and supplies in the areas where Cabrillo Port gas will be delivered and consumed, and appropriate mitigation measures to prevent extensive leakage should a concentration disparity similar to that experienced by Washington Gas be established for the Cabrillo Port product.

The Revised DEIR Fails to Adequately Consider other Types of LNG Accidents

Although BHP Billiton likes to pronounce that LNG is not explosive or flammable, this statement is far from the truth. In fact, LNG can be released by accident, or as a result of deliberate action, in which case it may cause serious damage and risks to humans and the environment.

Accidents do happen. In January, 2004, an explosion at an LNG liquefaction plant in Algeria resulted when a "large amount of liquid gas escaped from a pipe and formed a cloud of highly flammable and explosive vapor that hovered over the facility. The cloud exploded after coming into contact with a flame source."[90]

In August, 2005, a 28-inch LNG underground pipeline exploded at Kalakama. The explosion caused a "wild inferno" that "engulfed an estimated 27 square kilometers of the once rich Kalakama mangrove, killing sea foods and cash crops." Eleven people were missing after the fire, which was caused by a leak in the line. It took 48 hours to put out the fire.[91]

In September, 2005, a tanker truck carrying LNG caught fire, likely as a result of static electricity. At the time, a HazMat team was attempting to shut off a leaking valve when the gas ignited. The flames from the fire reached 40 feet in the area, and burned for over 24 hours.[92]

During Hurricane Rita, BHP Billiton's "Typhoon" oil and gas platform was ripped from its moorings in the Gulf of Mexico and was transported about 100 miles away. BHP Billiton spokeswoman Emma Meade said, "The facility is designed to withstand the effects of severe hurricanes, so we are not sure why it has gone off location."[93] Given the active seismic nature of the location where the Cabrillo Port FSRU and pipelines will be built, the Revised DEIR should consider the hazards and risks of a similar potential accident occurring here. An accident like this occurring to the Cabrillo Port project would jeopardize coastal communities and populations.

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[90] / Greenpeace, *Liquid Natural Gas: A roadblock to a clean energy future*, 2004, citing Raines, Ben, *Report Sheds New Light on LNG Blast in Algeria*, Mobile Register, April 14, 2004.
[91] / The Tide News, *NLNG pipeline explosion: 11 feared missing,* August 31, 2005.
[92] / Reno Gazette-Journal, *Static electricity cause of tanker truck fire,* September 20, 2005.
[93] / Industry Search, *Rita severely damages BHP's Typhoon platform,* September 28, 2005.

G207-117 Continued

G207-117 Continued

G207-118

Table 4.2-2 lists more than 20 hazards and threats that were considered in the public safety analysis. Section 4.2.7.6 under "Risk Assessment Process for FSRU LNG Operations" contains information on the many types of accidents that were systematically evaluated in the Security Vulnerability Assessment and Hazard Identification workshops and lists representative events considered in the analysis. Appendix C3-1 contains a chronological list of representative LNG accidents.

G207-118

G207-119

Information regarding the Skikda incident is summarized in Appendix C3-1.

G207-119

G207-120

Although this incident was reported as an LNG pipeline fire and explosion, it is unlikely that LNG, which would require a cryogenic pipeline, was carried in the pipeline, and more likely that it was a fire related to a natural gas leak. Furthermore, conditions in Nigeria cannot be compared to conditions offshore or onshore Southern California, given the differing regulatory framework and pipeline standards, which are enumerated in Table 4.2-14 within Section 4.2, Public Safety: Hazards and Risk Analysis.

G207-120

G207-121

G207-121

The proposed Project does not include truck transportation of LNG.

G207-122

G207-122

The Typhoon Platform, a tension leg production platform in the Gulf of Mexico jointly owned by Chevron and BHPB, was severed from its mooring and severely damaged during Hurricane Rita. The Typhoon Platform was designed for a different purpose using different design criteria.

The Cabrillo Port must be designed in accordance with applicable standards, and the USCG has final approval. Section 2.1 contains information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU. Section 4.2.4 contains information on Federal and State agency jurisdiction and cooperation. The Deepwater Port Act specifies performance levels that all deepwater ports must meet; Section 4.2.7.3 contains information on design and safety standards for the deepwater port. Section 4.2.8.2 contains information on pipeline safety and inspections. If the FSRU were to

become unmoored, the patrolling tugboats could be used to hold it in place. Section 4.3.1.4 addresses this topic.

The regulation implementing the Deepwater Port Act (33 CFR 149.625 [a]) states, "Each component, except for those specifically addressed elsewhere in this subpart (for example, single point moorings, hoses, and aids to navigation buoys), must be designed to withstand at least the combined wind, wave, and current forces of the most severe storm that can be expected to occur at the deepwater port in any 100-year period." By definition, a 100-year wave event is expected to occur once every 100 years on average over the course of many hundreds of years. The EIS/EIR's analyses have been developed with consideration of these factors and regulations.

Late last year, leaks were found in LNG tankers in Britain. These were new ships, supposedly built with up-to-date safety features. To compound the matter, "[t]he problem is worrying the industry because no one has yet discovered what the exact causes of the problems are and there are fears of a design problem that could affect up to 20 vessels. The ships are needed to service a massive increase in demand for LNG in Britain, the United States and elsewhere as the indigenous supplies of natural gas from the North Sea run out."[94] G207-123

Finally, onshore natural gas pipelines can also leak or rupture, causing significant harm. In May, 2005, a natural gas pipeline near Hallsville, Texas exploded, sending a fireball 500 feet in the air.[95] G207-124

In addition to accidents, LNG terminals, tankers and pipelines may serve as terrorist targets, according to a recent report of the U.S. Congressional Research Service.[96] G207-125

The Revised DEIR should analyze impacts to flight traffic in and out of LAX. For example, it has been stated that the Boston airport is closed when LNG tankers approach the port there. The Revised DEIR should state whether flights in and out of LAX will be affected by the existence of the Cabrillo Port FSRU and LNG tanker traffic. G207-126

All of these risks must be analyzed in full in the Revised DEIR.

4.2.5 Financial Responsibilities in the Event of an Accident G207-127

4.2.5.2 Environmental Harm

The Revised DEIR states that the federal Oil Pollution Act (OPA) of 1990 (33. U.S.C. Chapter 40) would apply to the proposed LNG project only in the event of an oil spill and that LNG is not "oil" within the context of the OPA. This explanation of liability under the OPA is inaccurate. The OPA's strict liability provisions would apply in the event of an LNG accident at the proposed Cabrillo Port because the DWPA specifically incorporates OPA liability provisions. Under §1503(c)(1) of the DWPA , in order for the applicant to be issued a license, the Secretary must determine that the applicant is financially responsible and will meet the requirements of § 1016 of the OPA (33 USCS § 2716).

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[94] / The Guardian, *Safety fears for fleet of new LNG tankers after leaks are found,* December 21, 2005.
[95] / Associated Press, *Explosion reported in Northeast Texas,* May 13, 2005.
[96] / Greenpeace, *Liquid Natural Gas: A roadblock to a clean energy future*, 2004, citing Paformak, Paul W., *Liquefied Natural Gas (LNG) Infrastructure Security: Background and Issues for Congress*, Congressional Research Service, Library of Congress, September 9, 2003, and Bender, Bryan, *US feared 9/11 hit in Boston, book says: LNG site in Everett was considered at risk*, Boston Globe, March 23, 2004.

G207-123
As discussed in Section 4.2.7.4, the chronological summary of major LNG carrier accidents included in Appendix C3 of this document identifies only five accidents since 1944 that occurred when LNG ships were at sea. None of these accidents resulted in injuries, fatalities, or a release of LNG, and only one was the result of a collision with another vessel. In 2002, the LNG ship Norman Lady collided with a U.S. Navy submarine, the U.S.S. Oklahoma City, east of the Strait of Gibraltar. The collision occurred after the LNG cargo had been unloaded, and although dents and cracking in the hull were reported, no damage was sustained by the empty Moss-type spherical storage tanks. According to the U.S. Department of Energy, over the life of the industry, eight marine incidents worldwide have resulted in spillage of LNG, with some hulls damaged due to cold fracture, but no cargo fires have occurred. Seven incidents not involving spillage were recorded, two from groundings, but with no significant cargo loss; that is, repairs were quickly made and leaks were avoided. There have been no LNG shipboard fatalities.

All LNG carriers are subject to two levels of oversight, international and domestic. They are inspected and certificated by both a designated classification society (e.g., ABS, Lloyds or DNV) on behalf of the flag state that will attest to compliance with applicable IMO standards for carriage of LNG. When a foreign flag LNG carrier enters U.S. waters, the USCG thoroughly examines the vessel for compliance with applicable U.S. regulations and to ensure compliance with vessel operating procedures. Any cited discrepancies must be corrected prior to returning to the U.S. and if serious enough to threaten the safety of personnel or the environment, deficiencies must be corrected prior to commencement of operations or departure from U.S. waters. Each LNG carrier must be inspected annually.

G207-124
Section 4.2.8. addresses safety issues related to natural gas pipelines. Section 4.2.8.4 contains information on historical natural gas pipeline incidents. Table 4.2-10 lists natural gas transmission pipeline incidents by cause from 1970 to the most recent year for which data are available. Table 4.2-11 lists SoCalGas natural gas transmission pipeline incidents reported to the National Response Center. Table 4.2-12 provides annual incident summaries for U.S. gas transmission pipelines, and Figure 4.2-2 shows pipeline incident, injury and fatality trends from 1986 to 2005.

G207-125
Table 4.2-2 and Sections 4.2.6.1 and 4.2.7.6 contain information on

the threat of terrorist attacks. Section 4.2.7.6 and the Independent Risk Assessment (Appendix C1) contain information on public safety impacts from various incidents at the FSRU. The analysis indicates that the maximum impact distance of an accident or intentional incident would involve a vapor cloud dispersion extending 6.3 nautical miles (7.3 miles) from the FSRU. The FSRU would be located approximately 12.01 nautical miles (13.83 miles) offshore; therefore, consequences of an accident or intentional incident involving LNG transport by carrier and storage on the FSRU would extend no closer than 5.7 nautical miles (6.5 miles) from the shoreline.

G207-126
The proposed Project would have no effect on flights in and out of LAX. As discussed in Section 4.17.3, the Project would not adversely affect air traffic operations.

G207-127
Section 4.2.5 contains information on financial liability. Under Section 1503(c)(1) of the Deepwater Port Act, MARAD may issue a license if, among other requirements, it finds that the applicant is financially responsible and will meet the requirements of Section 1016 of the Oil Pollution Act of 1990.

Section 1.1.1 cites the provisions of the Deepwater Port Act (DWPA): "In connection with the proposed Project, MARAD must determine whether to issue the Deepwater Port license. In making this decision, MARAD must make a number of determinations, described in the DWPA at 33 U.S.C. 1503." Section 1.2.1 states, "To meet the objectives of the DWPA, the Secretary is directed to promote new DWPs that are financially responsible."

Section 2.8 states, "The Applicant would be responsible for the cost of decommissioning at the end of the Project, and as part of the license approval, the DWPA requires each applicant to furnish a bond or demonstrate other proof that if the project is abandoned, then sufficient monies would be available to the Federal government for either completion or demolition of the project."

Onshore components would be operated by SoCalGas. As stated in Section 4.2.5.1, "the applicable law for determining liability for personal injury, should an accident occur during construction and subsequent operation of these onshore facilities, is determined apart from the DWPA. In most, if not all instances, liability would be determined under the laws of the State of California, as would be the case with any accident involving a natural gas pipeline subject to regulation by the CPUC."

"To the extent that damages for personal injury can be attributable under California law as due to the ordinary negligence of SoCalGas, the resultant damage payments may be treated by the CPUC as the liable utility's cost of doing business. The costs necessary for covering that liability, whether directly or indirectly through payment of insurance premiums, would then be recovered through the utility's gas rates, and the availability of funds necessary to cover any such damages would therefore be assured. Costs necessary to cover punitive damages or liabilities that arise from gross negligence or willful misconduct may not necessarily be passed on to ratepayers, as may be determined by the CPUC in its regulation of utility rates. In that event, funds necessary to cover such costs would come from the utility's own assets."

Regarding risks and financial responsibility for damages caused to project components from terrorism, earthquake, and tsunamis, MARAD has considered and included in the NEPA and DWPA review an assessment of the Applicant's ability to provide financial responsibility for these events and any license granted will insure that such events are adequately provided for. As discussed in Section 4.2, the likelihood of risks of loss to the public from such events is very low.

Section 4.2.5 contains information on liability in case of an accident and reimbursement for local agencies. The DWPA (33 U.S.C. 1504(h)(2)) allows for reimbursement from the applicant of "any economic costs" attributable to the construction and operation of the deepwater port. Further, both the CSLC, through lease provisions, and the Governor have authority under the DWPA to add to any license as may be necessary, reasonable conditions that will allow the State to insure that the deepwater port, if licensed, will adequately cover the costs to local communities for emergency response and other municipal and government services.

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Section 1016(a) of the OPA states that the responsible party for any vessel shall establish and maintain, in accordance with regulations promulgated by the Secretary, evidence of financial responsibility sufficient to meet the maximum amount of liability to which the responsible party could be subjected under §1004(a) or (d) (33 USCS §2704(a) or (d)), in a case where the responsible party would be entitled to limit liability under that section. If the responsible party owns or operates more than one vessel, evidence of financial responsibility needs to be established only to meet the maximum amount of liability applicable to the vessel having the greatest maximum liability.

Section 1016(c)(2) of the OPA explains that each responsible party with respect to a deepwater port shall establish and maintain evidence of financial responsibility sufficient to meet the maximum amount of liability to which the responsible party could be subjected under section 1004(a) of the OPA (33 USCS § 2704(a)) where the responsible party would be entitled to limit liability under that section. If the Secretary exercises authority under section 1004(d)(2) of the OPA (33 USCS §2704(d)(2)) to lower the limit of liability for deepwater ports, the responsible party shall establish and maintain evidence of financial responsibility sufficient to meet the maximum amount of liability so established. In a case in which a person is the responsible party for more than one deepwater port, evidence of financial responsibility needs to be established only to meet the maximum liability applicable to the deepwater port having the greatest maximum liability.

Section 1004 of the OPA provides limits on liability for vessels and deepwater ports. Under §1004(a), except as otherwise provided within §1004, there are limits on the total liability of a responsible party under §1002 (33 USCS § 2702). The limit for a deepwater port is $350,000,000. There are additional limits for vessels.

However, as outlined in §1004(c)(1), §1004(a) does not apply if the incident was proximately caused by—

- gross negligence or willful misconduct of, or
- the violation of an applicable Federal safety construction, or operating regulation by, the responsible party, an agent or employee of the responsible party, or a person acting pursuant to a contractual relationship with the responsible party.

Additionally, as outlined in §1004(c)(2), §1004(a) does not apply if the responsible party fails or refuses —

- to report the incident as required by law and the responsible party knows or has reason to know of the incident;
- to provide all reasonable cooperation and assistance requested by a responsible official in connection with removal activities; or
- without sufficient cause, to comply with an order issued under subsection (c) or (e) of section 311 of the Federal Water Pollution Control Act (33 U.S.C. 1471 et seq.).

Under Section 1004(d)(2) of the OPA, the Secretary may establish a limit of liability of less than $350,000,000, but not less than $50,000,000 for a deepwater port. Furthermore,

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requests to adjust the limit of liability for a deepwater port are established by a rulemaking that may take place concurrently with the processing of the deepwater port license application. 33 CFR §148.605.

The Revised DEIR should disclose the requirements and limits on liability that would apply to the proposed project, under various scenarios. The Revised DEIR should also disclose the circumstances under which the applicant will not be liable.

In addition, the Revised DEIR states that the State's liability and financial responsibility provisions of the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 ("Oil Spill Prevention and Response Act") that are codified in the California Government Code apply only to oil spills, implying that this law does not apply to LNG. The Oil Spill Prevention and Response Act, however, does apply to LNG spills because, as codified in the California Government Code and the California Public Resources Code, oil is defined as "any kind of petroleum, liquid hydrocarbon, or petroleum products or any fraction or residues therefrom, including, but not limited to, crude oil, bunker fuel, gasoline, diesel fuel, aviation fuel, oil sludge, oil refuse, oil mixed with waste, and liquid distillates from unprocessed natural gas."[97] Under this definition, LNG is an "oil" because LNG is a liquid hydrocarbon.[98] Therefore, these provisions should apply to the proposed project. However, acts of terrorism and grave natural disasters are not covered by the Lempert-Keene-Seastrand Oil Prevention and Response Act of 1990.

Although the Revised DEIR correctly states that the provisions of the Oil Spill Prevention and Response Act that are codified in the California Harbors and Navigation Code §294 make responsible parties strictly liable for any LNG accident, the Revised DEIR is misleading because it fails to inform the public that BHP Billiton or other responsible parties would not be liable under §294 for acts of terrorism and grave natural disasters. Specifically, California Harbors and Navigation Code §294(b)(1) states that responsible parties are not liable to injured parties for any of the following: "[d]amages, other than costs of removal incurred by the state or a local government, caused solely by an act of war, hostilities, civil war, or insurrection or by an unanticipated grave natural disaster or other act of God of an exceptional, inevitable, and irresistible character, which could not have been prevented or avoided by the exercise of due care or foresight."

Given these liability exemptions, it is important for the Revised DEIR to inform the public how they would be financially protected in the face of such a disaster, especially since the proposed Cabrillo Port would be located in a seismically sensitive area. The Revised DEIR states, "the potential exists for a future major tsunami in the Project area." (Revised DEIR at p. 4.11-25.) Further, the Revised DEIR also states that, according to a USGS report, the pipelines connecting the Cabrillo Port would cross a major east-west

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[97] / Cal. Gov. Code. §8670.3 (n); Cal. Pub. Resources Code §8750(k).

[98]/ The U.S. Department of Energy defines liquefied natural gas as "a liquid hydrocarbon mixture that is gaseous at reservoir temperatures and pressures, but which can be recovered through the process of condensation or absorption."
http://www.fossil.energy.gov/programs/gasregulation/efiling/intro.html

fault system, including the Anacapa-Dume Fault, which "has the potential for producing the largest earthquakes in the region, up to magnitude 7.5." (Revised DEIR at p. 4.11-8; see also comments on Geologic Hazards and Risks, below.) The public needs to know that they may bear the financial burden in the event of an earthquake, tsunami, or other "act of God."

4.2.5.4 Local Emergency Services Funding and Cost Recovery for Incidents

This portion of the Revised DEIR states that "[c]orporate taxes, franchise fees, and other taxes that would be paid by the Applicant or its designated representative would contribute to the city and county funding for emergency services provided for onshore pipeline incidents." This ambiguous statement fails to inform the public exactly what taxes will be paid, how much would be paid to what cities and counties, if the taxes and fees will be adequate to cover necessary emergency services, and if these cities and counties are capable of providing emergency services in the event of an LNG accident.

Additionally, the statement in the Revised DEIR, "[l]ocal governments also have the legal authority to conduct cost recovery actions for large-scale incidents requiring unusual expenditures of resources," is ambiguous and does not provide the public with enough information to know if they will bear the burden of increased taxes to pay for the cleanup of an LNG accident.

In sum, it is clear that BHP Billiton's liability and responsibility in the event of a natural disaster or deliberate attack will be limited or non-existent. The Revised DEIR must disclose the damage that might be incurred, how emergency response will be funded and implemented, and who will pay for damages that result from an incident at the FSRU, vessels, or pipelines.

4.3 MARINE TRAFFIC

4.3.1 Environmental Setting

4.3.1.2 Vessel Traffic during Installation and Construction

The Revised DEIR fails to address alternate marine traffic measures if the Captain of the Port (COPT) does not give permission to close down half the width of a vessel traffic lane during pipeline installation. The Revised DEIR states that the applicant "has proposed to notify and gain permission from the Captain of the Port (COPT) to close down half the width of a vessel traffic lane from 4.3 NM (5 miles or 8 km) before reaching the pipelaying barge to 0.9 NM (1 mile or 1.6 km) after the pipelaying barge." (Revised DEIR at p.4.3-11.) The Revised DEIR does not state whether the COPT has been consulted and is likely to approve of shutting down half of a shipping lane, and, if the COPT does not approve, what alternative measures are in place to ensure the safety to marine traffic during construction and installation.

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Restricting or limiting marine traffic in portions of designated traffic separation schemes or other waterway areas for activities such as dredging or pipeline installations is a relatively regular occurrence routinely handled by the cognizant USCG Captain of the Port (COTP). Therefore, considering the nature of the proposed activity (pipeline installation), the described action would be consistent with previous COTP decisions and the discussion of an alternative is unwarranted.

4.3.1.3 Vessel Traffic during Operations

The Revised DEIR inadequately describes and analyzes conflicts between LNG transit routes and military operations in the SOCAL Range Complex and the Point Mugu Sea Range. According to the Revised DEIR, LNG carriers and supply vessels would transit in the vicinity of the SOCAL Range Complex or through a small section of the Point Mugu Sea Range. (Revised DEIR at p.4.3-12 and p.4.3-36) The Revised DEIR states that ongoing "[o]perations of the Point Mugu Sea Range involve aircraft, ships and boats, unmanned aerial and surface targets, missiles and guns (Parisi 2004b)," and "corridors on the sea surface of the Sea Range would be closed to vessel traffic during these operations." (Revised DEIR at p.4.3-7.) According to Navy Captain Michael Allen, "LNG siting does have some impact" on the military's sea and air test ranges.[99]

Despite the fact that LNG carriers will transit through the Point Mugu Sea Range, the Revised DEIR does not explain alternate LNG carrier routes or actions for the 208 to 260 carrier transits to and from the FSRU per year (Revised DEIR at p.4.3-12) if vessel traffic is closed due to military operations. Further, although the proposed LNG carrier routes were developed in consultation with the USCG and the U.S. Navy (Revised DEIR at p.4.3-12), the Revised DEIR still omits a meaningful analysis of conflicts between the routes of LNG tankers and military exercises. For example, each LNG carrier will likely have a safety exclusion zone around it of 1,000 yards (914 m) ahead and 500 yards (447 meters) to the sides. (Revised DEIR at p.4.3-31.) In fact, the risk zone is up to 7.3 miles. (See Revised DEIR, Public Safety.) For other LNG projects, the Navy has been concerned that such a safety exclusion zone would adversely affect military operations.[100] If alternate routes are needed during military exercises, the location of these routes needs to be described and the impacts of these alternative routes on other marine traffic and project operations must be analyzed and mitigated.

4.3.1.4 Safety Measures

The Revised DEIR fails to describe adequate safety measures if the FSRU becomes detached from the ocean floor anchors. The Revised DEIR does not describe when or how the FSRU could become detached. Without knowing the possible situations in which the FSRU would become detached, it is impossible to know what safety measures would be sufficient or feasible. The Revised DEIR merely gives a cursory analysis of safety measures, such as using standby tugs to prevent the FSRU from drifting to shore or grounding, or towing the FSRU offshore to wait for repairs to the anchoring system.

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[99]/ Herdt, Timm, *Military Warns of LNG Site Conflicts: Offshore Terminals May Affect Training, State Lawmakers Told*, Ventura County Star, October 28, 2005.

[100]/ LeBlanc, Steve, *Navy weighs in against planned Fall River LNG terminal*, The New York Times Company, August 15, 2005. The Navy asked the Federal Energy Regulatory Commission to reconsider its approval of a proposed LNG terminal in Fall River because it had concerns that an LNG tanker safety zone would "'significantly and adversely impact water testing…essential to the Navy and the security of the nation.'"

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First, the Applicant has reduced the maximum number of LNG carriers that would call at Cabrillo Port to a maximum of 99 annually. Also, LNG carriers do not have security zones outside of Federal waters. Since Project LNG carriers would not enter Federal waters in transit to the FSRU, there would be no security zones associated with them. Therefore, the Navy would not have to take any out of the ordinary measures to accommodate the transit of an LNG carrier and there would be no impact on Naval operations.

Second, Impact MT-6 in Section 4.3.4 has been revised to addressed potential impacts on Naval operations. The Navy has agreed to the approach routes that are in the document. Project LNG carriers would take one of the two routes provided on Figure 4.3-2. To ensure that Project operations would not interfere with Naval operations, the Applicant would be required to submit its schedules to the Navy quarterly so that transits could be coordinated (MM MT-6b). In addition, the Applicant would be required to notify the Navy 24 to 48 hours in advance of LNG carriers approaching the FSRU (MM MT-6c).

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As described in Section 4.3.1.4, "[i]f the FSRU were to become detached from the anchors, it would be secured by the standby tugs to prevent it from drifting to shore or grounding. If power were available onboard the FSRU, a towline from a tug/supply vessel could be hauled onboard the FSRU at the bow and connected into a towing bracelet/chain assembly. If no power were available, an emergency towing system, capable of being deployed by one person without powered assistance, could be deployed from the stern of the vessel. Depending on the fault of the anchoring mechanism, repairs could be made by divers and a crane barge. The FSRU could also be disconnected from the turret mooring system and towed farther offshore to wait for repairs to the anchoring system. If determined to be necessary by the Captain of the Port, once the FSRU were secured, it could be towed to a location that is deemed safe and secure for further repair. After its repair, the FSRU would be returned and reconnected to its anchoring. There are no dockyard facilities on the West Coast of North America capable of dry-docking the FSRU; therefore, if dry-docking were necessary, the FSRU would be towed to an Asian LNG terminal to offload any residual LNG onboard before proceeding to dry-docking in Asia." These same procedures would occur whether the FSRU became detached due to a storm or other natural disaster.

The Typhoon Platform, a tension leg production platform in the Gulf

of Mexico jointly owned by Chevron and BHPB, was severed from its mooring and severely damaged during Hurricane Rita. The Typhoon Platform was designed for a different purpose using different design criteria.

The Cabrillo Port must be designed in accordance with applicable standards, and the USCG has final approval. Section 2.1 contains information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU. Section 4.2.4 contains information on Federal and State agency jurisdiction and cooperation. The Deepwater Port Act specifies performance levels that all deepwater ports must meet; Section 4.2.7.3 contains information on design and safety standards for the deepwater port. Section 4.2.8.2 contains information on pipeline safety and inspections. If the FSRU were to become unmoored, the patrolling tugboats could be used to hold it in place. Section 4.3.1.4 addresses this topic.

The regulation implementing the Deepwater Port Act (33 CFR 149.625 [a]) states, "Each component, except for those specifically addressed elsewhere in this subpart (for example, single point moorings, hoses, and aids to navigation buoys), must be designed to withstand at least the combined wind, wave, and current forces of the most severe storm that can be expected to occur at the deepwater port in any 100-year period." By definition, a 100-year wave event is expected to occur once every 100 years on average over the course of many hundreds of years. The EIS/EIR's analyses have been developed with consideration of these factors and regulations.